

Status of South Asian Non-volant Small Mammals

Conservation Assessment & Management Plan (C.A.M.P.) Workshop Report

Editors

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Collaborators

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Sponsors

Knowsley Safari Park, UK, Columbus Zoo, USA, Universities Federation for Animal Welfare, UK, and Chester Zoo, UK



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Status of South Asian Non-volant Small Mammals

1. Executive Summary

Little Indian Field Mouse
Mus booduga

Status of South Asian Non-volant Small Mammals

Executive Summary

Introduction

A Conservation Assessment and Management Plan (C.A.M.P.) Workshop on South Asian Non-volant Small Mammals was held from 9-13 February at the Karl Kübel Training Institute in Coimbatore, India. Eighteen small mammal field biologists and six conservationists from all over South Asia participated. In addition, the IUCN SSC Rodent, Insectivore and Lagomorph Specialist Groups were represented with members from South Asia, UK, USA, including the Rodent Specialist Group Chair, Giovanni Amori from Italy. The workshop was a combined C.A.M.P. and Global Mammal Assessment (GMA) with a team from the Global Mammal Assessment assisting with recording information.

The South Asian Non-volant Small Mammals C.A.M.P. was endorsed by the IUCN SSC Rodent Specialist Group, The IUCN SSC Insectivore Specialist Group, the IUCN SSC Lagomorph Specialist Group, the IUCN SSC Conservation Breeding Specialist Group, the IUCN Regional Biodiversity Programme (RBP), Asia and the Reintroduction Specialist Group, South & East Asia. Knowsley Safari Park, Universities Federation for Animal Welfare, and Chester Zoo/North of England Zoological Society, UK and Columbus Zoo, USA provided funds for the workshop and this Report.

The C.A.M.P. Process

The C.A.M.P. Process was developed by the IUCN SSC Conservation Breeding Specialist Group (CBSG). It includes assembling experts such as wildlife managers, SSC Specialist Group members, representatives of the academic community or private sector, researchers, captive managers and other stakeholders who provide the most current information in order to a) assign species and subspecies to IUCN Categories of Threat; b) formulate broad-based management recommendations, and c) develop more comprehensive management and recovery programs *in situ* and/or *ex situ*. Extensive review is carried out by participants who desire to do so before the final Report is compiled and finalised.

The 2001 IUCN Red List Criteria (Version 3.1)

C.A.M.P. workshops use the most recent version of the IUCN Red List Criteria and Categories and, where appropriate, the IUCN SSC Guidelines for Application of IUCN Red List Criteria at Regional Levels, as tools in assessing the status of a group of taxa. In the last decade IUCN has improved the method of assessing taxa by incorporating numerical values attached to the different criteria for threat categories. The 2001 version of the Red List Criteria and Categories use a set of five criteria (population reduction; restricted distribution, continuing decline and fluctuation; restricted population and continuing decline; very small population; and probability of extinction) to determine the threatened categories, which are Critically Endangered (CR), Endangered (EN) and Vulnerable (VU). Other categories are Extinct (EX), Extinct in the Wild (EW), Near Threatened (NT), Least Concern (LC), Data Deficient (DD) and Not Evaluated (NE).

The Workshop

Four South Asian countries were represented at the workshop: India, Nepal, Sri Lanka and Bangladesh with participants present throughout the exercise. C.A.M.P. workshops use working group sessions alternating with review in several plenary sessions. In this workshop the groups were organised by family/orders: two groups on Muridae (including all other families of rodents, and including lagomorphs and pholidots), Sciuridae and Insectivora.

With the added advantage of having many working field biologists from the range of these taxa, there was a significant improvement in data quality compared to the exercise conducted in 1997. In this C.A.M.P. workshop, 55 of the 185 non-volant small mammal species were categorized as threatened. Thirty-eight of the 62 species endemic to South Asia are threatened, which is over 60% of all NVSMs in the region! However, of the 123 nonendemics, only 17 are threatened. Restricted distribution is therefore a major criteria for threat assessments in the case of NVSMs in South Asia, barring six species that were categorised as threatened due to population decline and four species due to being found in only a few locations albeit with no threats on either the population or habitat.

Species not endemic to a country were assigned national status in every country of occurrence according to the IUCN Regional Red List Criteria (IUCN, 2003). India having the largest land area has the most endemic NVSM species - 26, followed by Sri Lanka with 10, and Nepal and Pakistan with one each. The remaining 24 species are endemic to South Asia but distributed in more than one country.

A Draft Report containing Taxon Data Sheets for all 185 NVSM species was given to participants at the end of the workshop thanks to the C.A.M.P. Data Entry Programme and hard work by recorders. This report reflects the corrections and comments that were returned on the draft Taxon Data Sheets. The output from the workshop has been submitted to the appropriate specialist group chairs and IUCN Red List committee for inclusion in 2005 IUCN Red List of Threatened Species. This is an appropriate utilisation of information from local field biologists and primate students from South Asia, and a credit to their work.

The Workshop was participated by four members of the Global Mammal Assessment who participated in the working groups and in assessments. The GMA team filled in data into the GMA database as well as mapped the distribution on the computer. The information on non-endemic species from the region will be used to assess the global status of widely distributed species of NVSMs by GMA.

Recommendations

A series of recommendations for research and management of South Asian Non-volant Small Mammals was derived from Taxon Data Sheets filled out by participants in the workshop. Key recommendations for research were taxonomic studies, surveys and life history studies; and for management included habitat management, public education and monitoring. Special issue working groups were formed on the following subjects: Research and field studies, Taxonomy, and Networking, training and education.

Table 1. Global status of endemic non-volant small mammals in South Asia (IUCN Red List Criteria 2001 (Ver. 3.1))

Scientific name	Conservation Status	Criteria
South Asian Endemics (Global status derived using IUCN Version 3.1)		
Erinaceomorpha		
Erinaceidae		
<i>Hemiechinus collaris</i> (Gray, 1830)	Least Concern	
<i>Hemiechinus micropus</i> (Blyth, 1846)	Least Concern	
<i>Hemiechinus nudiventris</i> (Horsfield, 1851)	Near Threatened	
Lagomorpha		
Leporidae		
<i>Caprolagus hispidus</i> (Pearson, 1839)	Endangered	B2ab(ii,iii,iv)
<i>Lepus nigricollis</i> Cuvier, 1823	Least Concern	
Pholidota		
Manidae		
<i>Manis crassicaudata</i> (Gray, 1827)	Vulnerable	A2c+3c+4c
Rodentia		
Calomyscidae		
<i>Calomyscus hotsoni</i> Thomas, 1920	Critically Endangered	B1ab(ii,iii)
Muridae		
<i>Alticola albicauda</i> (True, 1894)	Data Deficient	
<i>Alticola blanfordi</i> (Scully, 1880)	Vulnerable	B2ab(iii)
<i>Alticola montosa</i> (True, 1894)	Near Threatened	
<i>Alticola roylei</i> (Gray, 1842)	Endangered	B2ab(iii)
<i>Apodemus gurkha</i> Thomas, 1924	Endangered	B1ab(iii)
<i>Bandicota maxima</i> Pradhan <i>et al.</i> , 1993	Least Concern	
<i>Cremnomys blanfordi</i> (Thomas, 1881)	Least Concern	
<i>Cremnomys cutchicus</i> Wroughton, 1912	Least Concern	
<i>Cremnomys elvira</i> (Ellerman, 1947)	Critically Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Gerbillus gleadowi</i> Murray, 1886	Near Threatened	
<i>Hyperacrius fertilis</i> (True, 1894)	Vulnerable	B2ab(iii)
<i>Hyperacrius wynnei</i> (Blanford, 1881)	Least Concern	
<i>Millardia gleadowi</i> (Murray, 1885)	Least Concern	
<i>Millardia kondana</i> Mishra & Dhanda, 1975	Critically Endangered	B1ab(iii)+2ab(iii)
<i>Millardia meltada</i> (Gray, 1837)	Least Concern	
<i>Mus famulus</i> Bonhote, 1898	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Mus fernandoni</i> (Phillips, 1932)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Mus mayori</i> (Thomas, 1915)	Endangered	B1ab(ii,iii)
<i>Mus platythrix</i> Bennet, 1832	Least Concern	
<i>Mus saxicola</i> Elliot, 1839	Least Concern	
<i>Rattus burrus</i> (Miller, 1902)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Rattus montanus</i> Phillips, 1932	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Rattus palmarum</i> (Zelevor, 1869)	Critically Endangered	B1ab(iii)
<i>Rattus ranjinae</i> Agrawal & Ghosh, 1969	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Rattus stoicus</i> (Miller, 1902)	Vulnerable	D2
<i>Rattus vicerex</i> (Bonhote, 1903)	Least Concern	
<i>Srilankamys ohiensis</i> (Phillips, 1929)	Vulnerable	B1ab(ii,iii)+2ab(ii,iii)
<i>Vandeleuria nolthenii</i> (Phillips, 1929)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
Platacanthomyidae		
<i>Platacanthomys lasiurus</i> Blyth, 1859	Vulnerable	B2ab(ii,iii)

Scientific name	Camp Status	Criteria
Sciuridae		
<i>Biswamoyopterus biswasi</i> Saha, 1981	Critically Endangered	B1ab(iii); D
<i>Eoglaucomyys fimbriatus</i> (Gray, 1837)	Least Concern	
<i>Funambulus layardi</i> (Blyth, 1849)	Vulnerable	A3c+4c; B1ab(ii,iii)
<i>Funambulus palmarum</i> (Linnaeus, 1766)	Least Concern	
<i>Funambulus sublineatus</i> (Waterhouse, 1838)	Vulnerable	B2ab(ii,iii,iv)
<i>Funambulus tristriatus</i> (Waterhouse, 1837)	Near Threatened	
<i>Petaurista nobilis</i> Gray, 1842	Endangered	A2c+3c+4c
<i>Petinomys fuscocapillus</i> (Jerdon, 1847)	Near Threatened	
<i>Ratufa indica</i> (Erxleben, 1777)	Vulnerable	A2c+3c+4c
<i>Ratufa macroura</i> (Pennant, 1769)	Vulnerable	A2c+3c+4c; D
Soricomorpha		
Soricidae		
<i>Crocidura andamanensis</i> Miller, 1902	Critically Endangered	B1ab(iii)
<i>Crocidura hispida</i> Thomas, 1913	Vulnerable	D2
<i>Crocidura jenkinsi</i> Chakraborty, 1978	Critically Endangered	B1ab(iii)
<i>Crocidura miya</i> Phillips, 1929	Endangered	B1ab(iii)+2ab(iii)
<i>Crocidura nicobarica</i> Miller, 1902	Endangered	B1ab(iii)+2ab(iii)
<i>Crocidura pergrisea</i> Miller, 1913	Data Deficient	
<i>Feroculus feroculus</i> (Kelaart, 1850)	Endangered	B1ab(iii)+2ab(iii)
<i>Solisorex pearsonii</i> Thomas, 1924	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Sorex planiceps</i> Miller, 1911	Least Concern	
<i>Suncus dayi</i> (Dobson, 1888)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Suncus fellowesgordoni</i> Phillips, 1932	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Suncus montanus</i> (Kelaart, 1850)	Endangered	B2ab(ii,iii)
<i>Suncus stoliczkanus</i> (Anderson, 1877)	Least Concern	
<i>Suncus zeylanicus</i> Phillips, 1928	Endangered	B1ab(ii,iii)+2ab(ii,iii)
Scandentia		
Tupaiaidae		
<i>Anathana ellioti</i> (Waterhouse, 1850)	Near Threatened	
<i>Tupaia nicobarica</i> (Zelevor, 1869)	Endangered	B1ab(iii)+2ab(iii)

Indian Gerbil
Tatera indica

Table 2. Regional status of non-endemic non-volant small mammals in South Asia (IUCN Red List Criteria 2001 (Ver. 3.1) and IUCN Regional Red List Criteria 2003 (Ver. 3.0))

Scientific name	Camp Status	Criteria
South Asian Non-endemics (Regional status derived using IUCN Versions 3.1 and 3.0)		
Erinaceomorpha		
Erinaceidae		
<i>Hemiechinus auritus</i> (Gmelin, 1770)	Least Concern	
<i>Hemiechinus hypomelas</i> (Brandt, 1836)	Least Concern	
Soricomorpha		
Soricidae		
<i>Anourosorex squamipes</i> Milne-Edwards, 1872	Least Concern	
<i>Chimmarogale himalayica</i> (Gray, 1842)	Least Concern	
<i>Crocidura attenuate</i> Milne-Edwards, 1872	Least Concern	
<i>Crocidura gueldenstaedtii</i> (Pallas, 1811)	Not Evaluated	
<i>Crocidura horsfieldi</i> (Tomes, 1856)	Least Concern	
<i>Crocidura leucodon</i> (Hermann, 1780)	Data Deficient	
<i>Crocidura zarudnyi</i> Ognev, 1928	Least Concern	
<i>Nectogale elegans</i> Milne-Edwards, 1870	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Sorex bedfordiae</i> Thomas, 1911	Data Deficient	
<i>Sorex excelsus</i> Allen, 1923	Data Deficient	
<i>Sorex minutus</i> Linnaeus, 1766	Least Concern	
<i>Soriculus caudatus</i> (Horsfield, 1851)	Least Concern	
<i>Soriculus leucops</i> (Hodgson, 1855)	Least Concern	
<i>Soriculus macrurus</i> Blanford, 1888	Near Threatened	VU ↓ NT B2ab(iii); D2
<i>Soriculus nigriscens</i> (Gray, 1842)	Least Concern	
<i>Suncus etruscus</i> (Savi, 1822)	Least Concern	
<i>Suncus murinus</i> (Linnaeus, 1766)	Least Concern	
Talpidae		
<i>Euroscaptor micrura</i> (Hodgson, 1841)	Least Concern	
<i>Parascaptor leucura</i> (Blyth, 1850)	Least Concern	NT ↓ LC
Lagomorpha		
Leporidae		
<i>Lepus capensis</i> Linnaeus, 1758	Least Concern	
<i>Lepus oiostolus</i> Hodgson, 1840	Least Concern	
<i>Lepus tolai</i> Pallas, 1778	Data Deficient	
Ochotonidae		
<i>Ochotona curzoniae</i> (Hodgson, 1858)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Ochotona forresti</i> Thomas, 1923	Data Deficient	
<i>Ochotona himalayana</i> Feng, 1973	Near Threatened	VU ↓ NT D2
<i>Ochotona ladacensis</i> (Gunther, 1875)	Least Concern	
<i>Ochotona macrotis</i> (Gunther, 1875)	Least Concern	
<i>Ochotona nubrica</i> Thomas, 1922	Data Deficient	
<i>Ochotona roylei</i> (Ogilby, 1839)	Least Concern	
<i>Ochotona rufescens</i> (Gray, 1842)	Least Concern	
<i>Ochotona thibetana</i> (Milne-Edwards, 1871)	Vulnerable	EN ↓ VU B2ab(iii)
Pholidota		
Manidae		
<i>Manis pentadactyla</i> Linnaeus, 1758	Vulnerable	B2ab(ii,iii)

Scientific name	Camp Status		Criteria
Rodentia			
Calomyscidae			
<i>Calomyscus baluchi</i> Thomas, 1920	Least Concern		
Cricetidae			
<i>Cricetulus alticola</i> Thomas, 1917	Near Threatened	VU ↓ NT	B1ab(ii)+2ab(iii)
<i>Cricetulus migratorius</i> (Pallas, 1773)	Least Concern		
Dipodidae			
<i>Allactaga elater</i> (Lichtenstein, 1828)	Least Concern		
<i>Allactaga hotsoni</i> Thomas, 1920	Least Concern		
<i>Jaculus blanfordi</i> (Murray, 1884)	Least Concern		
<i>Salpingotus michaelis</i> Fitzgibbon, 1966	Near Threatened	VU ↓ NT	D2
<i>Sicista concolor</i> (Buchner, 1892)	Least Concern		
Gliridae			
<i>Dryomys nitedula</i> (Pallas, 1778)	Vulnerable	EN ↓ VU	B1ab(ii,iii)+2ab(ii,iii)
Hystricidae			
<i>Atherurus macrourus</i> (Linnaeus, 1758)	Near Threatened		
<i>Hystrix brachyura</i> Linnaeus, 1758	Near Threatened		
<i>Hystrix indica</i> (Kerr, 1792)	Least Concern		
Muridae			
<i>Acomys dimidiatus</i> (Cretzschmar, 1826)	Least Concern		
<i>Alticola argentatus</i> (Severtzov, 1879)	Least Concern		
<i>Alticola stoliczkanus</i> (Blanford, 1875)	Least Concern		
<i>Alticola stracheyi</i> (Thomas, 1880)	Least Concern		
<i>Apodemus draco</i> (Barrett-Hamilton, 1900)	Near Threatened	VU ↓ NT	B1ab(iii)+2ab(iii)
<i>Apodemus latronum</i> (Thomas, 1911)	Data Deficient		
<i>Apodemus orestes</i> (Thomas, 1911)	Near Threatened	VU ↓ NT	D2
<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	Least Concern		
<i>Bandicota bengalensis</i> (Gray & Hardwicke, 1833)	Least Concern		
<i>Bandicota indica</i> (Bechstein, 1800)	Least Concern		
<i>Berylmys bowersi</i> (Anderson, 1879)	Least Concern		
<i>Berylmys mackenziei</i> (Thomas, 1916)	Least Concern		
<i>Berylmys manipulus</i> (Thomas, 1916)	Least Concern		
<i>Cannomys badius</i> (Hodgson, 1841)	Near Threatened		
<i>Chiropodomys gliroides</i> (Blyth, 1856)	Near Threatened	VU ↓ NT	B1ab(ii,iii)+2ab(ii,iii)
<i>Dacnomys millardi</i> Thomas, 1916	Near Threatened	VU ↓ NT	B2ab(iii)
<i>Diomys crumpi</i> Thomas, 1917	Endangered		B1ab(iii)+2ab(iii)
<i>Ellobius fuscocapillus</i> (Blyth, 1842)	Vulnerable	EN ↓ VU	B1ab(ii,iii)+2ab(ii,iii)
<i>Eothenomys melanogaster</i> (Milne-Edwards, 1871)	Vulnerable	EN ↓ VU	B1ab(ii,iii)+2ab(ii,iii)
<i>Gerbillus aquilus</i> Schlitter & Stezer, 1972	Data Deficient		
<i>Gerbillus cheesmani</i> Thomas, 1919	Least Concern		
<i>Gerbillus nanus</i> Blanford, 1875	Least Concern		
<i>Golunda ellioti</i> Gray, 1837	Least Concern		
<i>Hydromys humei</i> (Thomas, 1886)	Vulnerable	EN ↓ VU	B1ab(iii)+2ab(iii)
<i>Leopoldamys edwardsi</i> (Thomas, 1882)	Near Threatened	VU ↓ NT	B2ab(ii,iii)
<i>Leopoldamys sabanus</i> (Thomas, 1887)	Data Deficient		
<i>Meriones crassus</i> Sundevall, 1842	Near Threatened		
<i>Meriones hurrianae</i> (Jerdon, 1867)	Near Threatened		
<i>Meriones lybicus</i> Lichtenstein, 1823	Least Concern		
<i>Meriones persicus</i> (Blanford, 1875)	Near Threatened	VU ↓ NT	B2ab(ii,iii)
<i>Micromys minutus</i> (Pallas, 1771)	Least Concern		
<i>Microtus juldaschi</i> (Severtzov, 1879)	Vulnerable	EN ↓ VU	B1ab(iii)+2ab(iii)

Scientific name	Camp Status	Criteria	
<i>Microtus leucurus</i> (Blyth, 1863)	Least Concern		
<i>Microtus sikimensis</i> (Hodgson, 1849)	Least Concern		
<i>Mus booduga</i> (Gray, 1837)	Least Concern		
<i>Mus cervicolor</i> Hodgson, 1845	Least Concern		
<i>Mus cookii</i> Ryley, 1914	Least Concern		
<i>Mus musculus</i> Linnaeus, 1758	Least Concern		
<i>Mus pahari</i> Thomas, 1916	Least Concern		
<i>Mus phillipsi</i> Wroughton, 1912	Least Concern		
<i>Nesokia indica</i> (Gray & Hardwicke, 1832)	Least Concern		
<i>Niviventer brahma</i> (Thomas, 1914)	Vulnerable	EN ↓ VU	B1ab(iii)+2ab(iii)
<i>Niviventer eha</i> (Wroughton, 1916)	Least Concern		
<i>Niviventer fulvescens</i> (Gray, 1847)	Least Concern		
<i>Niviventer langbianis</i> (Robinson & Kloss, 1922)	Endangered	CR ↓ EN	B1ab(iii)+2ab(iii)
<i>Niviventer niviventer</i> (Hodgson, 1836)	Least Concern		
<i>Niviventer tenaster</i> (Thomas, 1916)	Data Deficient		
<i>Rattus exulans</i> (Peale, 1848)	Data Deficient		
<i>Rattus nitidus</i> (Hodgson, 1845)	Least Concern		
<i>Rattus norvegicus</i> (Berkenhout, 1769)	Not Evaluated		
<i>Rattus rattus</i> (Linnaeus, 1758)	Least Concern		
<i>Rattus sikkimensis</i> (Hinton, 1919)	Least Concern		
<i>Rattus tanezumi</i> (Temminck, 1844)	Not Evaluated		
<i>Rattus turkestanicus</i> (Satunin, 1903)	Least Concern		
<i>Rhizomys pruinosus</i> Blyth, 1851	Endangered		B2ab(ii,iii)
<i>Rhombomys opimus</i> (Lichtenstein, 1823)	Vulnerable	EN ↓ VU	B2ab(iii)
<i>Tatera indica</i> (Hardwicke, 1807)	Least Concern		
<i>Vandeleuria oleracea</i> (Bennett, 1832)	Least Concern		
Sciuridae			
<i>Belomys pearsonii</i> (Gray, 1842)	Vulnerable		A3c+4c
<i>Callosciurus erythraeus</i> (Pallas, 1799)	Least Concern		
<i>Callosciurus pygerythrus</i> (I. Geoffroy Saint Hillaire, 1831)	Least Concern		
<i>Dremomys lokriah</i> (Hodgson, 1836)	Least Concern		
<i>Dremomys pernyi</i> (Milne-Edwards, 1867)	Near Threatened	VU ↓ NT	B2ab(ii,iii)
<i>Dremomys rufigenis</i> (Blanford, 1878)	Vulnerable	EN ↓ VU	B2ab(iii)
<i>Eupetaurus cinereus</i> Thomas, 1888	Endangered		B1ab(iii)+2ab(iii)
<i>Funambulus pennantii</i> Wroughton, 1905	Least Concern		
<i>Hylomys alboniger</i> (Hodgson, 1836)	Near Threatened		
<i>Hylomys aberti</i> (Blyth, 1847)	Vulnerable		B1ab(iii)
<i>Marmota caudata</i> (Geoffroy, 1844)	Near Threatened		
<i>Marmota himalayana</i> (Hodgson, 1841)	Least Concern		
<i>Petaurista caniceps</i> (Gray, 1842)	Near Threatened	VU ↓ NT	B2ab(ii,iii)
<i>Petaurista magnificus</i> (Hodgson, 1836)	Vulnerable		A2c+3c+4c;B1ab(ii,iii)
<i>Petaurista petaurista</i> (Pallas, 1766)	Near Threatened		
<i>Petaurista philippensis</i> (Elliot, 1839)	Near Threatened		
<i>Ratufa bicolor</i> (Sparrman, 1778)	Least Concern		
<i>Tamiops macclellandi</i> (Horsfield, 1840)	Least Concern		
Scandentia			
Tupaiaidae			
<i>Tupaia belangeri</i> (Wagner, 1841)	Near Threatened		

Table 3: Status of endemic and nonendemic non-volant small mammals in South Asia

Category	Endemics	Non-endemics	Total
Extinct (EX)	0	0	0
Extinct in the Wild (EW)	0	0	0
Locally Extinct (LE)	0	0	0
Critically Endangered (CR)	7	0	7
Endangered (EN)	20	4	24
Vulnerable (VU)	11	13	24
Near Threatened (NT)	6	24	30
Least Concern (LC)	16	68	84
Data Deficient (DD)	2	11	13
Not Evaluated (NE)	0	3	3
	62	123	185

Figure 1: Global status of South Asian endemic NVSMs.

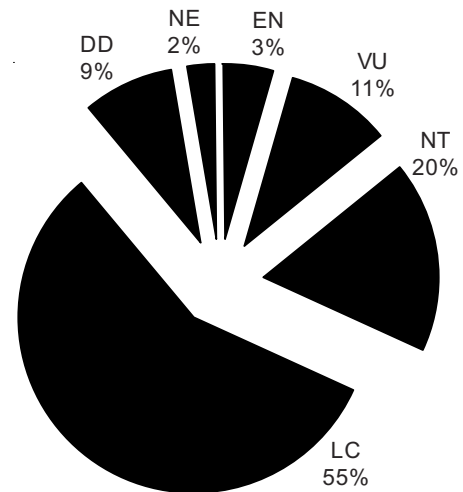
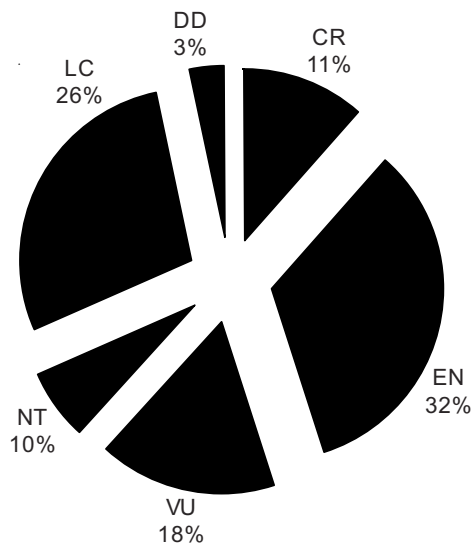


Figure 2: Regional status of South Asian non-endemic NVSMs.

Table 4: List of NVSMs with common names in South Asia

Scientific Name	Common Name
Erinaceomorpha	
Erinaceidae	
<i>Hemiechinus auritus</i> (Gmelin, 1770)	Long-eared Hedgehog
<i>Hemiechinus collaris</i> (Gray, 1830)	Collared Hedgehog
<i>Hemiechinus hypomelas</i> (Brandt, 1836)	Brandt's Hedgehog
<i>Hemiechinus micropus</i> (Blyth, 1846)	Indian Hedgehog
<i>Hemiechinus nudiventris</i> (Horsfield, 1851)	Madras Hedgehog
Lagomorpha	
Leporidae	
<i>Caprolagus hispidus</i> (Pearson, 1839)	Hispid Hare, Assam Rabbit
<i>Lepus capensis</i> Linnaeus, 1758	Cape Hare
<i>Lepus nigricollis</i> Cuvier, 1823	Black-naped Hare, Indian Hare
<i>Lepus oiostolus</i> Hodgson, 1840	Woolly Hare
<i>Lepus tolai</i> Pallas, 1778	Tolai Hare
Ochotonidae	
<i>Ochotona curzoniae</i> (Hodgson, 1858)	Black-lipped Pika, Plateau Pika
<i>Ochotona forresti</i> Thomas, 1923	Forrest's Pika
<i>Ochotona himalayana</i> Feng, 1973	Himalayan Pika
<i>Ochotona ladacensis</i> (Gunther, 1875)	Ladakh Pika
<i>Ochotona macrotis</i> (Gunther, 1875)	Large-eared Pika
<i>Ochotona nubrica</i> Thomas, 1922	Nubra Pika
<i>Ochotona roylei</i> (Ogilby, 1839)	Royle's Pika
<i>Ochotona rufescens</i> (Gray, 1842)	Afghan Pika
<i>Ochotona thibetana</i> (Milne-Edwards, 1871)	Manipur Pika, Moupin Pika
Pholidota	
Manidae	
<i>Manis crassicaudata</i> (Gray, 1827)	Indian Pangolin
<i>Manis pentadactyla</i> Linnaeus, 1758	Chinese Pangolin
Rodentia	
Calomyscidae	
<i>Calomyscus baluchi</i> Thomas, 1920	Baluchi Mouse-like Hamster
<i>Calomyscus hotsoni</i> Thomas, 1920	Hotson's Mouse-like Hamster
Cricetidae	
<i>Cricetulus alticola</i> Thomas, 1917	Ladakh Hamster
<i>Cricetulus migratorius</i> (Pallas, 1773)	Little Grey Hamster, Grey Hamster
Dipodidae	
<i>Allactaga elater</i> (Lichtenstein, 1828)	Small Five-toed Jerboa
<i>Allactaga hotsoni</i> Thomas, 1920	Hotson's Five-toed Jerboa
<i>Jaculus blanfordi</i> (Murray, 1884)	Blanford's Jerboa, Greater Three-toed Jerboa
<i>Salpingotus michaelis</i> Fitzgibbon, 1966	Baluchistan Pygmy Jerboa, Dwarf Three-toed Jerboa
<i>Sicista concolor</i> (Buchner, 1892)	Chinese Birch Mouse, Kashmir Birch Mouse
Gliiridae	
<i>Dryomys nitedula</i> (Pallas, 1778)	Forest Dormouse
Hystriidae	
<i>Atherurus macrourus</i> (Linnaeus, 1758)	Asiatic Brush-tailed Porcupine
<i>Hystrix brachyura</i> Linnaeus, 1758	Himalayan Crestless Porcupine
<i>Hystrix indica</i> (Kerr, 1792)	Indian Crested Porcupine, Indian Porcupine, Crested Porcupine

Scientific Name	Common Name
Muridae	
<i>Acomys dimidiatus</i> (Cretzschmar, 1826)	Arabian Spiny Mouse
<i>Alticola albicauda</i> (True, 1894)	White-tailed Mountain Vole, Baltistan Mountain Vole
<i>Alticola argentatus</i> (Severtzov, 1879)	Silver Mountain Vole
<i>Alticola blanfordi</i> (Scully, 1880)	Scully's Vole
<i>Alticola montosa</i> (True, 1894)	True's Vole, Kashmir Mountain Vole
<i>Alticola roylei</i> (Gray, 1842)	Royle's Vole, Royle's Mountain Vole, Royle's High Mountain Vole
<i>Alticola stoliczkanus</i> (Blanford, 1875)	Stoliczka's Vole, Stoliczka's Mountain Vole
<i>Alticola stracheyi</i> (Thomas, 1880)	Thomas's Short-tailed Vole, Thomas's Mountain Vole
<i>Apodemus draco</i> (Barrett-Hamilton, 1900)	South China Wood Mouse, Fukien Wood Mouse
<i>Apodemus gurkha</i> Thomas, 1924	Himalayan Wood Mouse
<i>Apodemus latronum</i> (Thomas, 1911)	Sichuan Field Mouse
<i>Apodemus orestes</i> (Thomas, 1911)	Chinese Wood Mouse
<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	Wood Mouse, Field Mouse
<i>Bandicota bengalensis</i> (Gray & Hardwicke, 1833)	Lesser Bandicoot-Rat
<i>Bandicota indica</i> (Bechstein, 1800)	Large Bandicoot-Rat
<i>Bandicota maxima</i> Pradhan et al. 1993	Greater Bandicoot-Rat
<i>Berylmys bowersi</i> (Anderson, 1879)	Bower's Rat
<i>Berylmys mackenziei</i> (Thomas, 1916)	Mackenzie's Rat, Kenneth's White-toothed Rat
<i>Berylmys manipulus</i> (Thomas, 1916)	Manipur Rat
<i>Cannomys badius</i> (Hodgson, 1841)	Bay Bamboo Rat
<i>Chiropodomys gliroides</i> (Blyth, 1856)	Pencil-tailed Tree-mouse
<i>Cremnomys blanfordi</i> (Thomas, 1881)	Blanford's Rat, White-tailed Wood Rat
<i>Cremnomys cutchicus</i> Wroughton, 1912	Cutch Rock Rat
<i>Cremnomys elvira</i> (Elleman, 1947)	Large Rock Rat
<i>Dacnomys millardi</i> Thomas, 1916	Millard's Rat, Millard's Large-toothed Rat
<i>Diomys crumpi</i> Thomas, 1917	Crump's Mouse
<i>Ellobius fuscocapillus</i> (Blyth, 1842)	Afghan Mole-Vole, Quetta Mole-Vole
<i>Eothenomys melanogaster</i> (Milne-Edwards, 1871)	Pere David's Vole
<i>Gerbillus aquilus</i> Schmitter & Stezer, 1972	Swarthy Gerbil
<i>Gerbillus cheesmani</i> Thomas, 1919	Cheesman's Gerbil
<i>Gerbillus gleadowi</i> Murray, 1886	Little Hairy-footed Gerbil
<i>Gerbillus nanus</i> Blanford, 1875	Baluchistan Gerbil, Pygmy Gerbil, Wagner's Gerbil
<i>Golunda ellioti</i> Gray, 1837	Indian Bush Rat
<i>Hadromys humei</i> (Thomas, 1886)	Hume's Rat, Hume's Large Bush Rat
<i>Hyperacrius fertilis</i> (True, 1894)	True's Vole, Burrowing Vole
<i>Hyperacrius wynnei</i> (Blanford, 1881)	Murree Vole
<i>Leopoldamys edwardsi</i> (Thomas, 1882)	Edward's Rat, Edward's Noisy Rat
<i>Leopoldamys sabanus</i> (Thomas, 1887)	Noisy Rat
<i>Meriones crassus</i> Sundevall, 1842	Sundevall's Jird
<i>Meriones hurrianae</i> (Jerdon, 1867)	Indian Desert Gerbil
<i>Meriones lybicus</i> Lichtenstein, 1823	Libyan Jird
<i>Meriones persicus</i> (Blanford, 1875)	Persian Jird
<i>Micromys minutus</i> (Pallas, 1771)	Harvest Mouse
<i>Microtus juldaschi</i> (Severtzov, 1879)	Juniper Vole, Pamir Vole
<i>Microtus leucurus</i> (Blyth, 1863)	Blyth's Vole
<i>Microtus sikimensis</i> (Hodgson, 1849)	Sikkim Vole
<i>Millardia gleadowi</i> (Murray, 1885)	Sand-coloured Metad, Sand-coloured Rat
<i>Millardia kondana</i> Mishra & Dhanda, 1975	Large Metad, Kondana Rat
<i>Millardia meltada</i> (Gray, 1837)	Soft-furred Metad, Soft-furred Field Rat
<i>Mus booduga</i> (Gray, 1837)	Common Indian Field Mouse, Little Indian Field Mouse
<i>Mus cervicolor</i> Hodgson, 1845	Fawn-coloured Mouse
<i>Mus cookii</i> Ryley, 1914	Ryley's Spiny Mouse, Cooke's Mouse
<i>Mus famulus</i> Bonhote, 1898	Bonhote's Mouse
<i>Mus fernandoni</i> (Phillips, 1932)	Ceylon Spiny Mouse
<i>Mus mayori</i> (Thomas, 1915)	Mayor's Mouse

Scientific Name	Common Name
<i>Mus musculus</i> Linnaeus, 1758	House Mouse
<i>Mus pahari</i> Thomas, 1916	Sikkim Mouse
<i>Mus phillipsi</i> Wroughton, 1912	Wroughton's Small Spiny Mouse, Wroughton's Mouse
<i>Mus platythrix</i> Bennet, 1832	Brown Spiny Mouse, Spiny Field Mouse
<i>Mus saxicola</i> Elliot, 1839	Elliot's Spiny Mouse, Elliot's Brown Spiny Mouse
<i>Nesokia indica</i> (Gray & Hardwicke, 1832)	Short-tailed Bandicoot-rat
<i>Niviventer brahma</i> (Thomas, 1914)	Thomas' Chestnut Rat, Mishmi Rat
<i>Niviventer eha</i> (Wroughton, 1916)	Little Himalayan Rat, Smoke-bellied Rat
<i>Niviventer fulvescens</i> (Gray, 1847)	Chestnut Rat
<i>Niviventer langbianis</i> (Robinson & Kloss, 1922)	Dark-tailed Rat, Langbian Rat
<i>Niviventer niviventer</i> (Hodgson, 1836)	Himalayan White-bellied Rat, White-bellied Rat
<i>Niviventer tenaster</i> (Thomas, 1916)	Tennasserim Long-tailed Rat, Tenasserim Rat
<i>Rattus burrus</i> (Miller, 1902)	Miller's Nicobar Rat, Miller's Rat
<i>Rattus exulans</i> (Peale, 1848)	Polynesian Rat
<i>Rattus montanus</i> Phillips, 1932	Nillu Rat, Nellsu Rat, Sri Lankan Mountain Rat
<i>Rattus nitidus</i> (Hodgson, 1845)	Himalayan Rat
<i>Rattus norvegicus</i> (Berkenhout, 1769)	Norway Rat, Brown Rat
<i>Rattus palmarum</i> (Zelevor, 1869)	Zelevor's Nicobar Rat, Nicobar Rat, Palm Rat
<i>Rattus ranjinae</i> Agrawal & Ghosh, 1969	Ranjini's Field Rat, Ranjini's Rat, Kerala Rat
<i>Rattus rattus</i> (Linnaeus, 1758)	Common House Rat, House Rat, Black Rat
<i>Rattus sikkimensis</i> (Hinton, 1919)	Sikkim Rat
<i>Rattus stoicus</i> (Miller, 1902)	Andaman Rat
<i>Rattus tanezumi</i> (Temminck, 1844)	Tanezumi Rat
<i>Rattus turkestanicus</i> (Satunin, 1903)	Turkestan Rat
<i>Rattus vicerex</i> (Bonhote, 1903)	Short-tailed Turkestan Rat
<i>Rhizomys pruinosus</i> Blyth, 1851	Hoary Bamboo Rat
<i>Rhombomys opimus</i> (Lichtenstein, 1823)	Great Gerbil
<i>Srilankamys ohiensis</i> (Phillips, 1929)	Ohiya Rat
<i>Tatera indica</i> (Hardwicke, 1807)	Indian Gerbil, Antelope Rat
<i>Vandeleuria noltherii</i> (Phillips, 1929)	Ceylon Highland Tree Mouse, Sri Lankan Highland Tree Mouse
<i>Vandeleuria oleracea</i> (Bennett, 1832)	Indian Long-tailed Tree Mouse
Platacanthomyidae	
<i>Platacanthomys lasiurus</i> Blyth, 1859	Malabar Spiny Dormouse
Sciuridae	
<i>Belomys pearsonii</i> (Gray, 1842)	Hairy-footed Flying Squirrel
<i>Biswamoyopterus biswasi</i> Saha, 1981	Namdapha Flying Squirrel
<i>Callosciurus erythraeus</i> (Pallas, 1799)	Pallas' Squirrel, Red-bellied Squirrel
<i>Callosciurus pygerythrus</i> (I. G. Saint-Hilaire, 1831)	Irrawady Squirrel, Hoary-bellied Himalayan Squirrel, Hoary-bellied Squirrel
<i>Dremomys lokriah</i> (Hodgson, 1836)	Orange-bellied Himalayan Squirrel
<i>Dremomys pemyi</i> (Milne-Edwards, 1867)	Perny's Long-nosed Squirrel
<i>Dremomys rufigenis</i> (Blanford, 1878)	Red-cheeked Squirrel, Asian Red-cheeked Squirrel
<i>Eoglaucomys fimbriatus</i> (Gray, 1837)	Small Kashmir Flying Squirrel
<i>Eupetaurus cinereus</i> Thomas, 1888	Woolly Flying Squirrel
<i>Funambulus layardi</i> (Blyth, 1849)	Layard's Striped Squirrel
<i>Funambulus palmarum</i> (Linnaeus, 1766)	Indian Palm Squirrel, Common Palm Squirrel, Three-striped Palm Squirrel
<i>Funambulus pennantii</i> Wroughton, 1905	Northern Palm Squirrel, Five-striped Palm Squirrel
<i>Funambulus sublineatus</i> (Waterhouse, 1838)	Dusky-striped Squirrel
<i>Funambulus tristriatus</i> (Waterhouse, 1837)	Jungle Striped Squirrel, Western Ghats Striped Squirrel
<i>Hylopetes alboniger</i> (Hodgson, 1836)	Parti-coloured Gliding Squirrel, Parti-coloured Flying Squirrel
<i>Hylopetes barberi</i> (Blyth, 1847)	Small Afghan Gliding Squirrel, Small Afghan Flying Squirrel
<i>Marmota caudata</i> (Geoffroy, 1844)	Long-tailed Marmot
<i>Marmota himalayana</i> (Hodgson, 1841)	Himalayan Marmot, Karakoram Marmot

Scientific Name	Common Name
<i>Petaurista caniceps</i> (Blyth, 1842)	Grey-headed Flying Squirrel, Lesser Giant Squirrel, Hill Squirrel
<i>Petaurista magnificus</i> (Hodgson, 1836)	Hodgson's Gliding Squirrel, Hodgson's Flying Squirrel
<i>Petaurista nobilis</i> (Gray, 1842)	Noble Giant Flying Squirrel, Gray's Giant Flying Squirrel
<i>Petaurista petaurista</i> (Pallas, 1766)	Red Giant Gliding Squirrel, Red Giant Flying Squirrel, Common Giant Flying Squirrel
<i>Petaurista philippensis</i> (Elliot, 1839)	Large Brown Gliding Squirrel, Large Brown Flying Squirrel, South Indian Giant Flying Squirrel, Indian Giant Flying Squirrel
<i>Petinomys fuscocapillus</i> (Jerdon, 1847)	Travancore Gliding Squirrel, Travancore Flying Squirrel
<i>Ratufa bicolor</i> (Sparman, 1778)	Black Giant Squirrel, Bicoloured Giant Squirrel, Malayan Giant Squirrel
<i>Ratufa indica</i> (Erleben, 1777)	Indian Giant Squirrel, Malabar Giant Squirrel
<i>Ratufa macroura</i> (Pennant, 1769)	Grizzled Giant Squirrel
<i>Tamiops macclellandi</i> (Horsfield, 1840)	Himalayan Striped Squirrel
Scandentia	
Tupaïidae	
<i>Anathana ellioti</i> (Waterhouse, 1850)	Madras Tree Shrew, South Indian Tree Shrew
<i>Tupaia belangeri</i> (Wagner, 1841)	Common Tree Shrew, Northern Tree Shrew
<i>Tupaia nicobarica</i> (Zelevor, 1869)	Nicobar Tree Shrew
Soricomorpha	
Soricidae	
<i>Anourosorex squamipes</i> Milne-Edwards, 1872	Mole-Shrew
<i>Chimmarogale himalayica</i> (Gray, 1842)	Himalayan Water Shrew, Himalayan Water Shrew
<i>Crocidura andamanensis</i> Miller, 1902	Andaman White-toothed Shrew, Miller's Andaman Spiny Shrew
<i>Crocidura attenuata</i> Milne-Edwards, 1872	Grey Shrew, Grey woodland Shrew
<i>Crocidura gueldenstaedtii</i> (Pallas, 1811)	Gueldenstaedt's White-toothed Shrew
<i>Crocidura hispida</i> Thomas, 1913	Andaman Shrew, Andaman Spiny Shrew
<i>Crocidura horsfieldi</i> (Tomes, 1856)	Horsfield's Shrew
<i>Crocidura jenkinsi</i> Chakraborty, 1978	Jenkin's Andaman Spiny Shrew
<i>Crocidura leucodon</i> (Hermann, 1780)	Bicoloured White-toothed Shrew
<i>Crocidura miya</i> Phillips, 1929	Sri Lankan Long-tailed Shrew
<i>Crocidura nicobarica</i> Miller, 1902	Nicobar Shrew
<i>Crocidura pergrisea</i> Miller, 1913	Pale Grey Shrew
<i>Crocidura zarudnyi</i> Ognev, 1928	Zarudny's Shrew
<i>Feroculus feroculus</i> (Kelaart, 1850)	Kelaart's Long-clawed Shrew
<i>Nectogale elegans</i> Milne-Edwards, 1870	Web-footed Water Shrew, Elegant Water Shrew
<i>Solisorex pearsonii</i> Thomas, 1924	Pearson's Long-clawed Shrew
<i>Sorex bedfordiae</i> Thomas, 1911	Lesser Stripe-backed Shrew
<i>Sorex excelsus</i> Allen, 1923	Highland Shrew, Lofty Shrew
<i>Sorex minutus</i> Linnaeus, 1766	Lesser Shrew, Pygmy Shrew
<i>Sorex planiceps</i> Miller, 1911	Kashmir Shrew
<i>Soriculus caudatus</i> (Horsfield, 1851)	Hodgson's Brown-toothed Shrew
<i>Soriculus leucops</i> (Hodgson, 1855)	Indian Long-tailed Shrew
<i>Soriculus macrurus</i> Blanford, 1888	Arboreal Brown-toothed Shrew
<i>Soriculus nigriscens</i> (Gray, 1842)	Sikkim Large-clawed Shrew
<i>Suncus dayi</i> (Dobson, 1888)	Day's Shrew
<i>Suncus etruscus</i> (Savi, 1822)	Savi's Pygmy Shrew, Pygmy Shrew
<i>Suncus fellowesgordoni</i> Phillips, 1932	Ceylon Pygmy Shrew
<i>Suncus montanus</i> (Kelaart, 1850)	Hill Shrew
<i>Suncus murinus</i> (Linnaeus, 1766)	House Shrew, Grey Musk Shrew
<i>Suncus stoliczkanus</i> (Anderson, 1877)	Anderson's Shrew
<i>Suncus zeylanicus</i> Phillips, 1928	Ceylon Jungle Shrew, Sri Lankan Shrew
Talpidae	
<i>Euroscaptor micrura</i> (Hodgson, 1841)	Himalayan Mole, Short-tailed Mole
<i>Parascaptor leucura</i> (Blyth, 1850)	Indian Mole, White-tailed Mole, Assamese Mole

Status of South Asian Non-volant Small Mammals

2. Report

Long-eared Hedgehog
Hemiechinus auritus

Status of South Asian Non-volant Small Mammals

Introduction

The South Asian region (also called the Indian subcontinent) consists of seven countries (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka), which together constitutes a region of very high biodiversity. This is attested by the fact that Mittermeier, *et al.* (1999) identified two mainland hotspots within the region, e.g. Western Ghats and Eastern Himalaya, and a small portion as belonging to a third hotspot (Nicobar group of Islands belonging to the Sundaland hotspot). The region's biodiversity is threatened by developmental enthusiasm adopted by South Asian governments, and also by intermittent ethnic and political clashes. Non-volant small mammals (NVSMs) among other taxa, are facing varying degrees of extinction threats in the region. A total of 185 NVSM species are known from South Asia of which 62 are endemic to the region and 123 are non-endemic species.

In 1997, a Conservation Assessment and Management Plan (C.A.M.P.) Workshop for Indian Mammals, including 202 non-volant small mammals taxa, was conducted as part of a larger project, the Biodiversity Conservation Prioritisation Project (BCPP). Some of the assessments of endemic Indian non-volant small mammals were accepted for the 2000 IUCN Red List of Threatened Species. The 1997 workshop could include only a few specialists for non-volant small mammals, as more than 400 mammals of India from all groups had to be assessed. Subsequently, a network of these and many other non-volant small mammal biologists was organised called Rodent, Insectivore, Lagomorph, Scandent Conservation and Information Network of South Asia (RILSCINSA). The network carried out a variety of tasks generated by the BCPP Mammal C.A.M.P. recommendations, participated in three field techniques training workshops and conducted a number of field studies funded by UK and USA zoos. Therefore, seven years later it was decided to conduct a workshop that was entirely focused on NVSMs with assessments of Indian species as well as a regional assessment to include other countries of South Asia.

NVSMs form an integral part of biodiversity and a link between humans and nature. In South Asia several Hindu epics, fables and plays of ancient and modern times feature small mammals as integral to the philosophy of these works. This cultural bond which exists between small mammals (particularly rats, mice and shrews) and humans in the region, which can be used to benefit biodiversity conservation. In addition, assessing the status of NVSMs in this Workshop has not only provided conservation focus for this large taxonomic group regionally, but will also assist participating nations with national assessments of small mammals for their country's biodiversity strategy.

Through a network of NVSM biologists gathered together after the 1997 workshop, extensive efforts were made to contact all South Asian non-volant small mammal field biologists, and to collect information from other sources both published and unpublished. Field biologists studying rodents, insectivores, scandents, and lagomorphs from the range countries were invited to the workshop. The few biologists from other countries who had conducted studies were invited but could not come for various reasons. A complete list of participants and their affiliations appear at the end of this report.

The Workshop

The Conservation Assessment and Management Plan (C.A.M.P.) Workshop for South Asian Non-volant Small Mammals was held at the Karl Kübel Institute, Anaikatti in Coimbatore, Tamil Nadu, India, from 9-13 February 2004. About 30 field biologists and taxonomists from South Asia and several members of the IUCN SSC Rodent and Insectivore Specialist Groups from India, USA and UK participated. The workshop was also host to the Global Mammal Assessment (GMA) team to provide regional information on species that are non-endemic to South Asia for a global status assessment.

The Inaugural was honoured to host Dr. V. Ramakantha, I.F.S., Principal, State Forest Service College and Dr. V.S. Vijayan, Director, SACON as President and Chief Guest of the function. Dr. Ramakantha has been a friend of the Zoo Outreach Organisation's (ZOO) Conservation Breeding Specialist Group (CBSG) activities since 1991. He commented on the current popularity of umbrella and flagship species and congratulated scientists who were working on small creatures which might be in the process of going extinct while most others were focused on charismatic species and protected areas. Dr. Vijayan spoke on the association of SACON with the C.A.M.P. workshops. He also highlighted the fact that only 30% of endemic species are in protected areas and queried who would protect those not occurring in protected areas? He stressed the importance of involving more lay persons in conservation.

The South Asian Non-volant Small Mammals C.A.M.P. was endorsed by the IUCN SSC Rodent Specialist Group, the IUCN SSC Conservation Breeding Specialist Group, the IUCN SSC Reintroduction Specialist Group, South and East Asia, and the IUCN SSC Regional Biodiversity Programme (RBP), Asia. A CBSG/RSG Overview Training in Reintroduction, Conservation Breeding and Conservation Welfare was conducted from 13-15 February 2004 at the same venue with a field visit to the Silent Valley National Park. Sponsors of the C.A.M.P. and the training afterwards were Knowsley Safari Park, Columbus Zoo, Universities Federation for Animal Welfare and the Chester Zoo.

The C.A.M.P. / Global Mammal Assessment (GMA) workshop was attended by 30 odd NVSM researchers and taxonomists from South Asia as well as experts from other regions, including the Chair of the Rodent Specialist Group, Chair of the Reintroduction Specialist Group, Europe and North Asia, the IUCN SSC GMA specialists and others. Dr. John Williams, Programme Consultant for the Conservation Breeding Specialist Group, who wrote the C.A.M.P. Data Entry Programme, could attend the workshop and help ZOO recorders and researchers work out problems they had with the programme. Dr. Williams also got many new ideas for using the C.A.M.P. Data Entry Programme and making it more meaningful and useful for conservation biologists.

The primary focus of the workshop was endemic small mammal taxa of South Asia (62 species in 9 families). These taxa were prioritised for first attention. Non-endemic small mammals were also covered, using the Regional Guidelines for Application of IUCN Red List Criteria at sub-global level. National assessments for species with distribution in more than one country were done.

A conservation training workshop including reintroduction, conservation breeding and conservation welfare with special emphasis on NVSMs immediately followed the C.A.M.P. The C.A.M.P., GMA and conservation training created many ideas and suggestions to enhance, expand and deepen the work

already completed by the network and its members. Some of these suggestions were formalized in the Special Issue Working Group Reports following the C.A.M.P. and some were contributed during or after the conservation training.

Workshop objectives

The objectives of the workshop included:

- Expanding the network of all South Asian small mammal biologists – academics, government agencies, non-governmental organizations and institutions, selected individuals and other stakeholders.
- Providing an opportunity for stakeholders, particularly those native to South Asia, to actively participate in a process that results in the derivation of the conservation status of non-volant small mammal taxa of the region using the 2001 IUCN Red List Criteria and Categories.
- Deriving an accurate IUCN category for all South Asian non-volant small mammal taxa based on available information – published or unpublished – as a rapid assessment providing adequate documentation as required by the IUCN Red List protocol.
- Drafting specific taxon-based and habitat-based action plans for the protection of the non-volant small mammal taxa and their habitat.
- Establishing research and management priorities for future action for non-volant small mammal taxa.
- Identifying immediate needs for practical conservation-oriented steps for follow-up actions for non-volant small mammal taxa.
- Cooperating with the Global Mammal Assessment (GMA).

C.A.M.P. workshop

A C.A.M.P. workshop follows a relatively standard procedure and agenda, yet is continuously under modification to improve the process on the basis of lessons learned, and also to accommodate the requirements of different taxon groups, geographic areas (whether country, region or globe), and even level of information available. The essential elements remain constant however and these are :

- an attempt to find and bring the most knowledgeable field biologists and taxonomists for the target taxon group regardless of any other consideration,
- use of small working groups which are guided by “ground rules” for group interaction which are intended to facilitate the collection and recording of information and its analysis quickly
- a philosophy of objectivity, prioritising biological values of the taxa over all other considerations in order to obtain a consistent result,
- prioritising according to the IUCN Red List Criteria and Categories to assess the level of threat and assign the taxon to an accurate category,

- transparency, honesty and inclusivity with respect to information.

Information is gathered for use in assessments and for record in a C.A.M.P. Report which is made available to all persons for the purpose of conservation of the species. Participants are encouraged to part with unpublished information to increase the accuracy of the assessment. Every piece of information is credited to the contributor and his ownership of it is protected so that this sharing of information does not cause hardship and loss to the author.

Workshop participants

The Workshop drew upon the collective expertise of local non-volant small mammal researchers gathered in a representative group of the South Asian Region. The “regional” focus, in which field biologists from at least four of the South Asian countries were brought together, had the real advantage of permitting discussion on issues of taxa ranging between countries. It created a bond between non-volant small mammal biologists in the region who worked together very intensively for five days to produce a written product on the non-volant small mammal taxa of their country and region that now can be used by policy makers, politicians, press and the public for conservation action.

The Global Mammal Assessment of IUCN SSC and Conservation International collaborating with CBSG C.A.M.P. workshops

The Global Mammal Assessment (GMA), and indeed, all of what are known as the Global Assessments of SSC/CI, are part of the larger vision of IUCN Species Survival Commission. All of these assessments review the status of all species in different faunal groups using mapping, geographic distributions, threat assessments and documenting important habitats and threats for each species. The global assessments will help SSC achieve a larger objective of producing relevant and accessible biodiversity assessments and analysis tools to enhance conservation and sustainable development decision-making.

The global assessments will contribute to implementation of the three objectives of the SSC Strategic Plan, e.g.

1. Decisions and policies affecting biodiversity influenced by sound interdisciplinary scientific information with outputs as under (i) status of biodiversity measured by indicators derived from the Red List, (ii) status of key taxonomic groups assessed, (iii) impacts of key threats to biodiversity assessed, (iv) key techniques and policies for conservation of biodiversity developed and disseminated, and (v) others.
2. Modes of production and consumption that promote the conservation of biodiversity adopted by users of natural resources, such as (i) tools developed to assist decision makers in managing natural resources sustainably, (ii) decisions on use of natural resources increasingly based on sound scientific information provided by SSC.
3. Capacity increased to provide timely, innovative and practical solutions to conservation problems, e.g. (i) management capacity and performance of Specialist Groups improved, (ii) internal and external access provided to SSC publications, products and lessons learned, (iii) SIS, Species Information Service, fully operational and data added on an ongoing basis, etc.

The data gathered will be kept in the SIS to jump-start data acquisition capacity in all groups. The data from the C.A.M.P./GMA workshop will go back to SSC Specialist Groups.

These global assessments work synergistically with a Conservation Assessment and Management Plan, each providing breadth and depth of approach which is not complete in the other. The South Asian Non-Volant Small Mammal C.A.M.P. is the second attempt at combining these two dynamic processes, the first being the Global Amphibian Assessment (GAA) and the S.Asian Amphibian C.A.M.P. held in Coimbatore, India in 2002.

ZOO / CBSG, South Asia has conducted many C.A.M.P. workshops with several objectives, one of which has been to see that South Asian endemics, many of which had not been assessed before, could be listed in the annually produced IUCN SSC Red List of Threatened Species. After years of frustration in dealing with the well-intentioned but complicated SSC Red Listing process, it seems the best way to achieve this is to cooperate with the global assessment project.

Previously in C.A.M.P. workshops, the all important mapping activities were not sufficiently well-organised and attempts to indicate localities on the maps provided by us led to mistakes and lacunae. The global assessment workshops use mapping as their primary tool and have acquired an excellent version of ARKVIEW, one of the best computer mapping programmes.

In this C.A.M.P. workshop, the GMA team consisted of five persons, sufficient so that one GMA member could sit in each working group with his laptop computer and mapping programme which was an improvement over the Amphibian C.A.M.P./GAA.

Before the workshop, GMA experts met with ZOO / CBSG, South Asia staff and John Williams from IUCN SSC CBSG to figure out the most optimal way to work together. John revised the C.A.M.P. Data Entry Programme somewhat to accommodate a few things from the GMA.

After some initial discomfort as GMA experts got accustomed to the much longer and detailed C.A.M.P. Taxon Data Sheet and C.A.M.P. process, and workshop participants settled into a rhythm, all went well. One-hundred-and-eighty-five species of non-volant small mammals were assessed and Special Issue Working Group sessions were conducted.

Methods for assessment

Although NVSMs are not well studied in most South Asian countries, a system adopted for assessing primates (South Asian Primates C.A.M.P., March 2002) was continued in this workshop where a separate spread sheet for listing all known localities was provided, instead of a few lines in the Taxon Data Sheets. For some species such as *Rattus rattus*, *Mus musculus*, *Bandicota indica*, *Bandicota bengalensis*, *Tatera indica*, *Suncus murinus* and *Lepus nigricollis*, participants filled more than three long pages with locality data.

Data forms called “Biological Information Sheets” were distributed to all invitees much before the workshop, and many who were not in a position to attend in person returned these forms with current information. Information from all sources was recorded in the C.A.M.P. Data Entry Programme for review by participants.

In a C.A.M.P., most of the work is done in working groups and reviewed in several plenary sessions. In this workshop the working groups were organised by taxonomic groups such as murids, soricids and sciurids.

Taxon Data Sheets and assessment logic

The Taxon Data Sheet used at the workshop was divided into various sections, viz.:

1. Part One

General information including taxonomy, habit, habitat, distribution, locality information, threats, populations, trade, field studies, data quality, qualifier and uncertainty.

2. Part Two

Status assessment as per information provided in Part One based on the 2001 IUCN Red List Criteria (Version 3.1) and National/Regional IUCN Criteria (Version 3.0), CITES listing, national wildlife laws, presence in protected areas and previous assessments.

3. Part Three

Uncertainty issues related to data quality, qualifiers and group dynamics with respect to assessments.

4. Part Four

Recommendations for research, monitoring, captive breeding, education, population and habitat viability assessment and comments on the species.

5. Part Five

Information on migration between adjacent populations across international boundaries, threats, colonization effects, etc. to do with assessing species at the national level.

6. Part Six

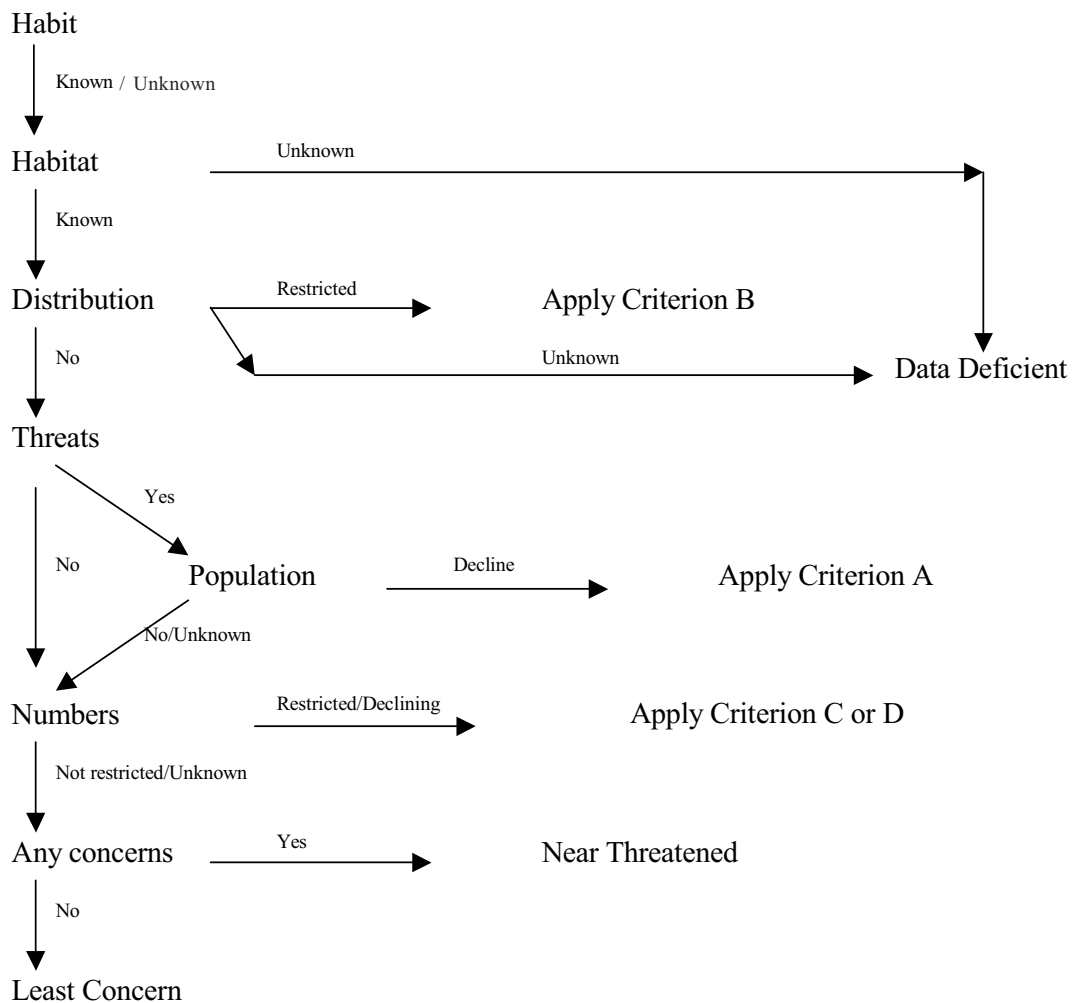
Compilers of primary working group, reviewers of the data and sources referred to in deriving literature and other unpublished information.

Information was gathered in this 8-page Taxon Data Sheet and also electronically recorded in the C.A.M.P. Data Entry Programme developed by CBSG National assessment for NVSMs within South Asia was attempted at the workshop after assessments of all endemic taxa were completed. All assessments were ratified by participants in plenary sessions after discussion, which ultimately led to consensus within the workshop.

The Taxon Data Sheets are included in a separate section of this report. A synopsis of information compiled for the species and data interpretation is given in the following pages for better understanding of the process and status assessments.

The information compiled using the Taxon Data Sheets was used in a logical deduction of the status first using the global IUCN Red List Categories and Criteria (2001) in the case of endemics. In the case of non-endemics, the taxon distribution within the region was assessed using the global criteria, followed by the regional guidelines. National assessments were carried out in a similar manner using the regional guidelines. The following flowchart interprets the use of information and the criteria in deriving the status.

Figure 1. Flowchart to explain the process of assessments for NVSMs in South Asia



Pre-C.A.M.P. data compilation

Preparations for the NVSM C.A.M.P. included compilation of data using the Biological Information Sheets, which elicited a good response (Table 1). Twenty-six biologists who had or are studying NVSMs responded with information ranging from one to 32 species per respondent. The information was very helpful in the discussions leading to the assessments at the workshop. Further, the information was already available in the database used in the workshop as they were entered prior to the C.A.M.P. workshop.

Interpretation and data source

The NVSM C.A.M.P. workshop was much enhanced by the presence of participants from various institutes dealing with studies on small mammals, compared to the 1997 Biodiversity Conservation Prioritisation Project (BCPP) Mammal C.A.M.P. workshop where only six researchers contributed data. NVSMs are not one of the better-studied mammal groups in the region, and added to this is the lack of taxonomic expertise in the region. The depth of study, however, follows a descending order of detail starting with sciurids, herpestids, murids, lagomorphs, soricids and other families and orders including scandentia. During the last several years the studies conducted by the All India Coordinated Rodent Pest Control Project has accumulated some information on rodent pests from different parts of the country, which include, at the most 20 species (which are not all pests or at least not *always* pests). Information on distribution can be availed from these studies. The Zoological Survey of India has conducted by far the most NVSM surveys since a long time and the scientists from ZSI contributed significantly to the understanding of the status of taxa. Most other institutes and individuals who have or are studying NVSMs in the field from India, Bangladesh and Sri Lanka contributed to the workshop. A team of four working on the Global Mammal Assessments participated in compiling information in the GMA format and also in mapping.

Distribution

Information on NVSM distribution is better for some groups than others, usually the larger-bodied taxa. Also, distribution of pest species is better known than of the least studied forest or non pest species. For many taxa information on distribution is only known from past studies as very few systematic surveys have been conducted on NVSMs in the recent past. Very little information is available for countries such as Bangladesh, Bhutan and Nepal where no group has been actively involved in field work. There is some information on NVSMs in Pakistan because of the work conducted by T.J. Roberts in the 70s, 80s and the 90s. More recent work by Charles Woods in Pakistan has yielded some information from the report, but none from published literature or Biological Information Sheets.

Although information on some subspecies of NVSMs is known, it was decided at the workshop not to assess taxa at that level as the level of confidence in subspecies distribution is very low and further taxonomic efforts will be required to resolve identification of many taxa.

Range, Area and population numbers

Since there is relatively good information on extent of occurrence (EEO) for most taxa, more accurate estimates were made at the workshop for NVSMs compared to the less known area of occupancy (AOO). Unfortunately, due to lack of complete studies, no population estimates for South Asian

Table 1: Pre-C.A.M.P. contributions in the form of Biological Information Sheets on NVSMs in South Asia

Animon, M.M.	<i>Bandicota indica, Funambulus tristriatus, Millardia meltada, Mus booduga, Mus musculus, Mus platythrix, Rattus rattus, Suncus murinus, Tatera indica</i>
Arun, P.	<i>Tatera indica</i>
BISMUPL	<i>Mus platythrix</i>
Chakraborty, S.	<i>Callosciurus pygerythrus, Meriones hurrianae, Ratufa bicolor</i>
Chandrashekhar, G.R.	<i>Rattus rattus</i>
Datta, A.	<i>Callosciurus erythraeus, Dremomys lokriah, Marmota himalayana, Ratufa bicolor</i>
Goonatilake, W.L.D.P.T.S. de A.	<i>Bandicota bengalensis, Bandicota indica, Cremnomys blanfordi, Crocidura horsfieldii, Crocidura miya, Feroculus feroculus, Funambulus layardi, Funambulus palmarum, Funambulus sublineatus, Golunda ellioti, Hystrix indica, Millardia meltada, Mus booduga, Mus fernandoni, Mus majori, Mus musculus, Petaurista philippensis, Petinomys fuscocapillus, Rattus montanus, Rattus norvegicus, Rattus rattus, Ratufa macroura, Solisorex pearsonii, Srilankamys ohiensis, Suncus etruscus, Suncus fellowesgordoni, Suncus montanus, Suncus murinus, Suncus zeylanicus, Tatera indica, Vandeleuria nolthenii, Vandeleuria oleracea</i>
Hassan, et al.	<i>Bandicota bengalensis, Bandicota indica, Funambulus pennantii, Hystrix indica, Nesokia indica, Suncus murinus</i>
Jathar, G.A.	<i>Mus platythrix, Suncus etruscus, Suncus murinus, Suncus stolickzanus, Vandeleuria oleracea</i>
Joshua, J.	<i>Funambulus palmarum, Funambulus pennantii, Funambulus tristriatus, Hemiechinus collaris, Hemiechinus micropus, Meriones hurrianae, Mus booduga, Ratufa indica, Ratufa macroura, Tatera indica</i>
Maheswaran, G.	<i>Caprolagus hispidus, Crocidura attenuata, Golunda ellioti, Lepus nigricollis, Mus cervicolor, Suncus murinus, Tupaia belangeri</i>
Mukta Bai, K.	<i>Bandicota bengalensis, Golunda ellioti, Mus booduga, Mus musculus, Mus platythrix, Tatera indica</i>
Nameer, P.O.	<i>Bandicota indica, Funambulus tristriatus, Millardia meltada, Mus booduga, Mus musculus, Mus platythrix, Rattus rattus, Suncus murinus, Tatera indica</i>
Neelanarayanan, P.	<i>Bandicota bengalensis, Bandicota indica, Funambulus palmarum, Millardia meltada, Mus booduga, Mus musculus, Suncus murinus, Tatera indica, Vandeleuria oleracea</i>
Padmanabhan, P.	<i>Bandicota bengalensis, Bandicota indica, Feroculus feroculus, Funambulus palmarum, Funambulus tristriatus, Golunda ellioti, Hemiechinus nudiventris, Hystrix indica, Millardia meltada, Mus booduga, Mus musculus, Mus saxicola, Petaurista philippensis, Platacanthomys lasiurus, Rattus norvegicus, Rattus ranjinae, Ratufa indica, Ratufa macroura, Suncus dayi, Suncus murinus, Tatera indica, Vandeleuria oleracea</i>
Sarker, S.U.	<i>Euroscaptor micrura</i>
Sharma, S.K.	<i>Petaurista philippensis</i>
Shenoy, K.	<i>Golunda ellioti, Millardia meltada, Mus platythrix, Suncus murinus, Tatera indica, Vandeleuria oleracea</i>
Shreshta, T.K.	<i>Chimmarogale himalayica</i>
Srinivasulu, C. and Bhargavi Srinivasulu	<i>Anathana ellioti, Bandicota bengalensis, Bandicota indica, Cremnomys blanfordi, Cremnomys cutchicus, Funambulus palmarum, Funambulus pennantii, Golunda ellioti, Hystrix indica, Lepus nigricollis, Manis crassicaudata, Millardia meltada, Mus booduga, Mus musculus, Mus platythrix, Mus saxicola, Petaurista philippensis, Rattus norvegicus, Rattus rattus, Ratufa indica, Suncus etruscus, Suncus murinus, Tatera indica, Vandeleuria oleracea</i>
Suresh, G.	<i>Tatera indica</i>
Thapa, J.	<i>Petaurista magnificus</i>
Visa, A.	<i>Bandicota indica, Funambulus tristriatus, Millardia meltada, Mus booduga, Mus musculus, Mus platythrix, Rattus rattus, Suncus murinus, Tatera indica</i>
Weerasinghe, W.A.M.K.	<i>Bandicota indica, Millardia meltada, Mus musculus, Rattus norvegicus, Rattus rattus</i>
Wickramasinghe, D.	<i>Mus majori, Rattus montanus, Rattus norvegicus, Rattus rattus, Suncus zeylanicus</i>

NVSMs could be made.

Data Quality

Much of the information provided was based on literature and some direct observations in recent field studies. Comparative data from older studies was used to assess habitat declines. Indirect information from pest studies and inferences were used to derive threats and thereby status. As for taxonomy, it was decided to follow what was currently existing at the time of the workshop. For all larger NVSMs, information on their distribution, threats and status was based on direct observation and some indirect evidence. For the majority of the NVSMs, much of the distribution information was through literature and some direct observation in certain areas, while information from other areas including distribution was inferred from indirect sources and extrapolated from information from one or two locations.

Uncertainty

Lack of studies produced the most uncertainty in NVSMs, followed by lack of consistent taxonomic studies. However, the workshop resolved to assess the status of the species with the available information with ample scope for improvements as more studies are done in the future.

South Asian NVSM taxonomy

Unlike the South Asian Primates C.A.M.P. workshop where some of the langur taxonomy was resolved either during or after the workshop, the NVSM C.A.M.P. workshop was not directed towards taxonomic debates or settlements since the main focus was on conservation assessments. However, during the course of the assessments, it was felt that quite a few species needed additional taxonomic research as basic issues such as distribution and threats could not be decided due to taxonomic differences between scientists. Some groups that require taxonomic studies include *Rattus* species, *Bandicota* species, *Mus* species, giant squirrels, *Suncus montanus*, *Suncus murinus*, *Feroculus feroculus*, among others.

Species such as those occurring on the Indian mainland and in Sri Lanka definitely need taxonomic clarification due to their isolated distribution and relatively specialized distribution in the two countries. Species such as *Feroculus feroculus*, *Ratufa macroura*, *Suncus montanus*, *Funambulus palmarum*, and *Suncus etruscus* are typical examples.

In the latest (third) edition of Mammals of the World by Wilson & Reeder (in press) there are many changes in systematics of the groups of NVSMs (Table 2). The Order Insectivora is split into three orders, one of which, Afrosoricida, is not represented in South Asia. The other two orders include Erinaceomorpha (Family Erinaceidae) and Soricomorpha (only Families Soricidae and Talpidae occur in South Asia). Similarly, some changes in Order Rodentia include the replacement of some genera from Family Muridae into other families erected such as Platacanthomyidae, Calomyscidae and Cricetidae.

Recent field studies

The report includes most of the recent field studies conducted on NVSM taxa in South Asia. This is available as part of the Taxon Data Sheet as also in the distribution tables.

Table 2: The proposed systematic list of NVSMs worldwide by Wilson & Reeder (in press) and the representation in South Asia

	No. of Genera	No. of Species	Presence in South Asia (Genera / Species)
Order Afrosoricida	19	51	No
Suborder Tenrecomorpha	10	30	No
Family Tenrecidae	10	30	No
Suborder Chrysochloridea	9	21	No
Family Chrysochloridae	9	21	No
Order Scandentia	5	20	Yes (2 / 3)
Family Tupaiidae	4	19	Yes (2 / 3)
Family Ptilocercidae	1	1	No
Order Rodentia	481	2277	Yes (52 / 128)
Suborder Sciuromorpha	61	307	Yes (13 / 29)
Family Aplodontiidae	1	1	No
Family Sciuridae	51	278	Yes (12 / 28)
Family Gliridae	9	28	Yes (1 / 1)
Suborder Castorimorpha	13	102	No
Family Castoridae	1	2	No
Family Heteromyidae	6	60	No
Family Geomyidae	6	40	No
Suborder Myomorpha	326	1569	Yes (37 / 96)
Superfamily Dipodoidea	16	51	Yes (4 / 5)
Family Dipodidae	16	51	Yes (4 / 5)
Superfamily Muroidea	310	1518	Yes (33 / 91)
Family Platacanthomyidae	2	2	Yes (1 / 1)
Family Spalacidae	6	36	No
Family Calomyscidae	1	8	Yes (1 / 2)
Family Nesomyidae	21	61	No
Family Cricetidae	130	681	Yes (1 / 2)
Family Muridae	150	730	Yes (30 / 86)
Suborder Anomaluromorpha	4	9	No
Family Anomaluridae	3	7	No
Family Pedetidae	1	2	No
Suborder Hystricomorpha	77	290	Yes (2 / 3)
Infraorder Ctenodactylomorphi	4	5	No
Family Ctenodactylidae	4	5	No
Infraorder Hystricognathi	73	285	Yes (2 / 3)
Family Bathyergidae	5	16	No
Family Hystricidae	3	11	Yes (2 / 3)
Family Petromuridae	1	1	No
Family Thryonomyidae	1	2	No
Family Erethizontidae	5	16	No
Family Chinchillidae	3	7	No
Family Dinomyidae	1	1	No
Family Caviidae	6	18	No
Family Dasyproctidae	2	13	No
Family Cuniculidae	1	2	No

	No. of Genera	No. of Species	Presence in South Asia (Genera / Species)
Family Ctenomyidae	1	60	No
Family Octodontidae	8	13	No
Family Abrocomidae	2	10	No
Family Echimyidae	21	90	No
Family Myocastoridae	1	1	No
Family Capromyidae	8	20	No
Family Heptaxodontidae	4	4	No
Order Lagomorpha	13	92	Yes (3 / 14)
Family Ochotonidae	1	30	Yes (1 / 9)
Family Prolagidae	1	1	No
Family Leporidae	11	61	Yes (2 / 5)
Order Erinaceomorpha	10	24	Yes (1 / 5)
Family Erinaceidae	10	24	Yes (1 / 5)
Order Soricomorpha	45	428	Yes (11 / 33)
Family Nesophontidae	1	9	No
Family Solenodontidae	1	4	No
Family Soricidae	26	376	Yes (9 / 31)
Family Talpidae	17	39	Yes (2 / 2)
Order Pholidota	1	8	Yes (1 / 2)
Family Manidae	1	8	Yes (1 / 2)
			(70 / 185)

Results

The current number of NVSM species in South Asia stands at 185. The 2004 IUCN Red List of Threatened Species lists 149 species of NVSMs from the region of South Asia. However, there are some differences in some assessments, mostly due to better information currently available. Also, the 2004 Red List is based mostly on the 1994 IUCN Red List Criteria and Categories (Version 2.3), while the current C.A.M.P. workshop followed the more updated version of 2001 (Version 3.1). While the IUCN list does not compile detailed information on national status for any of the assessed taxa, the NVSM C.A.M.P. Report 2005 includes a list of national assessments. The C.A.M.P. Report also includes assessments for some taxa occurring in India and Sri Lanka at population levels. A summary of NVSM status in South Asia is provided in Table 3. Figures 2 and 3 represent summarized depictions of the status of endemic and non-endemic NVSMs in South Asia.

The assessments in this Report are based on more current information available at the C.A.M.P. Workshop. The overall status of NVSMs in South Asia is that 55 of the 185 species (30%) are threatened! Thirteen of the 130 non-threatened species lack any information for a meaningful status assessment and therefore are classified as Data Deficient, while three species are categorised as Not Evaluated because of being introduced aliens or due to taxonomic problems. Table 4 lists the status of all NVSMs in South Asia assessed globally for endemic species (using IUCN Red List Categories and Criteria Version 3.1), and regionally for non-endemic species (using IUCN Regional Red List Criteria Version 3.0). The Table also includes the criteria for assessment of threatened species. The first part of Table 4 includes assessments on the global scale, which are of species that are restricted to South Asia, while the second part of the table includes regional assessments for species not restricted to South Asia. The IUCN guidelines provide the flexibility of assessing global and regional/national status for every species based on endemism and distribution, which was employed in deriving the categories in this NVSM C.A.M.P. workshop. The status of 25 nonendemic species were adjusted by downgrading by one category due to their occurrence in neighbouring region(s) with possibilities of recolonization in South Asia.

Table 3: Summary status of NVSMs in South Asia.

Category	Endemics	Non-endemics	Total
Extinct (EX)	0	0	0
Extinct in the Wild (EW)	0	0	0
Locally Extinct (LE)	0	0	0
Critically Endangered (CR)	7	0	7
Endangered (EN)	20	4	24
Vulnerable (VU)	11	13	24
Near Threatened (NT)	6	24	30
Least Concern (LC)	16	68	84
Data Deficient (DD)	2	11	13
Not Evaluated (NE)	0	3	3
	62	123	185

Figure 2: Global status of South Asian endemic NVSMs.

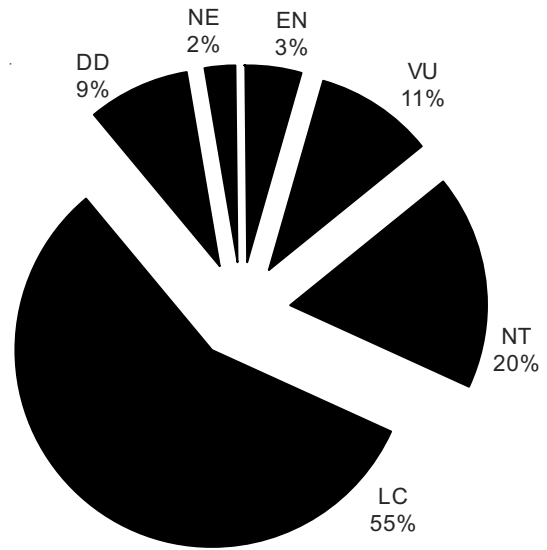
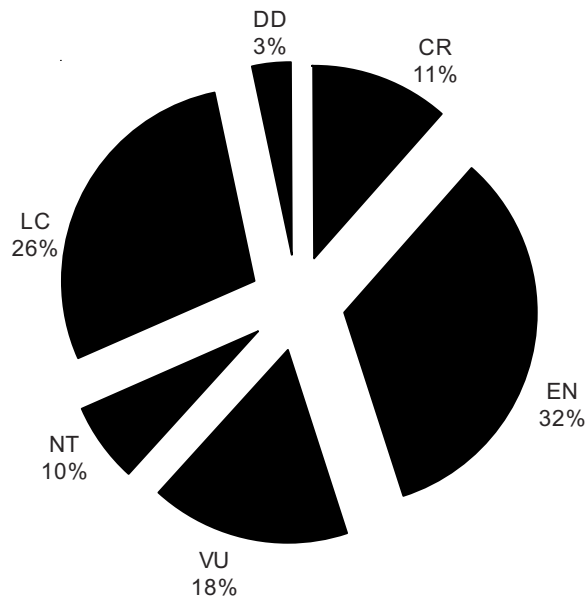


Figure 3: Regional status of South Asian nonendemic NVSMs.

Table 4: Global and regional status of non-volant small mammals in South Asia derived at the C.A.M.P. workshop using 2001 IUCN Red List Criteria and Categories (Version 3.1: Global and Version 3.0: Regional)

Scientific name	Status	Criteria
SOUTH ASIAN ENDEMIC (Global status derived using IUCN Version 3.1)		
Erinaceomorpha		
Erinaceidae		
<i>Hemiechinus collaris</i> (Gray, 1830)	Least Concern	
<i>Hemiechinus micropus</i> (Blyth, 1846)	Least Concern	
<i>Hemiechinus nudiventris</i> (Horsfield, 1851)	Near Threatened	
Lagomorpha		
Leporidae		
<i>Caprolagus hispidus</i> (Pearson, 1839)	Endangered	B2ab(ii,iii,iv)
<i>Lepus nigricollis</i> Cuvier, 1823	Least Concern	
Pholidota		
Manidae		
<i>Manis crassicaudata</i> (Gray, 1827)	Vulnerable	A2c+3c+4c
Rodentia		
Calomyscidae		
<i>Calomyscus hotsoni</i> Thomas, 1920	Critically Endangered	B1ab(ii,iii)
Muridae		
<i>Alticola albicauda</i> (True, 1894)	Data Deficient	
<i>Alticola blanfordi</i> (Scully, 1880)	Vulnerable	B2ab(iii)
<i>Alticola montosa</i> (True, 1894)	Near Threatened	
<i>Alticola roylei</i> (Gray, 1842)	Endangered	B2ab(iii)
<i>Apodemus gurkha</i> Thomas, 1924	Endangered	B1ab(iii)
<i>Bandicota maxima</i> Pradhan <i>et al.</i> , 1993	Least Concern	
<i>Cremnomys blanfordi</i> (Thomas, 1881)	Least Concern	
<i>Cremnomys cutchicus</i> Wroughton, 1912	Least Concern	
<i>Cremnomys elvira</i> (Ellerman, 1947)	Critically Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Gerbillus gleadowi</i> Murray, 1886	Near Threatened	
<i>Hyperacrius fertilis</i> (True, 1894)	Vulnerable	B2ab(iii)
<i>Hyperacrius wynnei</i> (Blanford, 1881)	Least Concern	
<i>Millardia gleadowi</i> (Murray, 1885)	Least Concern	
<i>Millardia kondana</i> Mishra & Dhanda, 1975	Critically Endangered	B1ab(iii)+2ab(iii)
<i>Millardia meltada</i> (Gray, 1837)	Least Concern	
<i>Mus famulus</i> Bonhote, 1898	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Mus fernandoni</i> (Phillips, 1932)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Mus mayori</i> (Thomas, 1915)	Endangered	B1ab(ii,iii)
<i>Mus platythrix</i> Bennet, 1832	Least Concern	
<i>Mus saxicola</i> Elliot, 1839	Least Concern	
<i>Rattus burrus</i> (Miller, 1902)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Rattus montanus</i> Phillips, 1932	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Rattus palmarum</i> (Zelebor, 1869)	Critically Endangered	B1ab(iii)
<i>Rattus ranjinae</i> Agrawal & Ghosh, 1969	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Rattus stoicus</i> (Miller, 1902)	Vulnerable	D2
<i>Rattus vicerex</i> (Bonhote, 1903)	Least Concern	
<i>Srilankamys ohiensis</i> (Phillips, 1929)	Vulnerable	B1ab(ii,iii)+2ab(ii,iii)
<i>Vandeleuria nolthenii</i> (Phillips, 1929)	Endangered	B1ab(ii,iii)+2ab(ii,iii)

Scientific name	Status	Criteria
Platacanthomyidae		
<i>Platacanthomys lasiurus</i> Blyth, 1859	Vulnerable	B2ab(ii,iii)
Sciuridae		
<i>Biswamoyopterus biswasi</i> Saha, 1981	Critically Endangered	B1ab(iii); D
<i>Eoglaucmys fimbriatus</i> (Gray, 1837)	Least Concern	
<i>Funambulus layardi</i> (Blyth, 1849)	Vulnerable	A3c+4c; B1ab(ii,iii)
<i>Funambulus palmarum</i> (Linnaeus, 1766)	Least Concern	
<i>Funambulus sublineatus</i> (Waterhouse, 1838)	Vulnerable	B2ab(ii,iii,iv)
<i>Funambulus tristriatus</i> (Waterhouse, 1837)	Near Threatened	
<i>Petaurista nobilis</i> Gray, 1842	Endangered	A2c+3c+4c
<i>Petinomys fuscocapillus</i> (Jerdon, 1847)	Near Threatened	
<i>Ratufa indica</i> (Erxleben, 1777)	Vulnerable	A2c+3c+4c
<i>Ratufa macroura</i> (Pennant, 1769)	Vulnerable	A2c+3c+4c; D
Soricomorpha		
Soricidae		
<i>Crocidura andamanensis</i> Miller, 1902	Critically Endangered	B1ab(iii)
<i>Crocidura hispida</i> Thomas, 1913	Vulnerable	D2
<i>Crocidura jenkinsi</i> Chakraborty, 1978	Critically Endangered	B1ab(iii)
<i>Crocidura miya</i> Phillips, 1929	Endangered	B1ab(iii)+2ab(iii)
<i>Crocidura nicobarica</i> Miller, 1902	Endangered	B1ab(iii)+2ab(iii)
<i>Crocidura pergrisea</i> Miller, 1913	Data Deficient	
<i>Feroculus feroculus</i> (Kelaart, 1850)	Endangered	B1ab(iii)+2ab(iii)
<i>Solisorex pearsonii</i> Thomas, 1924	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Sorex planiceps</i> Miller, 1911	Least Concern	
<i>Suncus dayi</i> (Dobson, 1888)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Suncus fellowesgordoni</i> Phillips, 1932	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Suncus montanus</i> (Kelaart, 1850)	Endangered	B2ab(ii,iii)
<i>Suncus stoliczkanus</i> (Anderson, 1877)	Least Concern	
<i>Suncus zeylanicus</i> Phillips, 1928	Endangered	B1ab(ii,iii)+2ab(ii,iii)
Scandentia		
Tupaiaidae		
<i>Anathana ellioti</i> (Waterhouse, 1850)	Near Threatened	
<i>Tupaia nicobarica</i> (Zelevor, 1869)	Endangered	B1ab(iii)+2ab(iii)
SOUTH ASIAN NONENDEMIC (Regional status derived using IUCN Versions 3.1 and 3.0)		
Erinaceomorpha		
Erinaceidae		
<i>Hemiechinus auritus</i> (Gmelin, 1770)	Least Concern	
<i>Hemiechinus hypomelas</i> (Brandt, 1836)	Least Concern	
Soricomorpha		
Soricidae		
<i>Anourosorex squamipes</i> Milne-Edwards, 1872	Least Concern	
<i>Chimmarogale himalayica</i> (Gray, 1842)	Least Concern	
<i>Crocidura attenuata</i> Milne-Edwards, 1872	Least Concern	
<i>Crocidura gueldenstaedtii</i> (Pallas, 1811)	Not Evaluated	
<i>Crocidura horsfieldi</i> (Tomes, 1856)	Least Concern	
<i>Crocidura leucodon</i> (Hermann, 1780)	Data Deficient	
<i>Crocidura zarudnyi</i> Ognev, 1928	Least Concern	
<i>Nectogale elegans</i> Milne-Edwards, 1870	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)

Scientific name	Status		Criteria
<i>Sorex bedfordiae</i> Thomas, 1911	Data Deficient		
<i>Sorex excelsus</i> Allen, 1923	Data Deficient		
<i>Sorex minutus</i> Linnaeus, 1766	Least Concern		
<i>Soriculus caudatus</i> (Horsfield, 1851)	Least Concern		
<i>Soriculus leucops</i> (Hodgson, 1855)	Least Concern		
<i>Soriculus macrurus</i> Blanford, 1888	Near Threatened	VU ↓ NT	B2ab(iii); D2
<i>Soriculus nigriscens</i> (Gray, 1842)	Least Concern		
<i>Suncus etruscus</i> (Savi, 1822)	Least Concern		
<i>Suncus murinus</i> (Linnaeus, 1766)	Least Concern		
Talpidae			
<i>Eurosaptor micrura</i> (Hodgson, 1841)	Least Concern		
<i>Parascaptor leucura</i> (Blyth, 1850)	Least Concern	NT ↓ LC	
Lagomorpha			
Leporidae			
<i>Lepus capensis</i> Linnaeus, 1758	Least Concern		
<i>Lepus oiostolus</i> Hodgson, 1840	Least Concern		
<i>Lepus tolai</i> Pallas, 1778	Data Deficient		
Ochotonidae			
<i>Ochotona curzoniae</i> (Hodgson, 1858)	Near Threatened	VU ↓ NT	B1ab(iii)+2ab(iii)
<i>Ochotona forresti</i> Thomas, 1923	Data Deficient		
<i>Ochotona himalayana</i> Feng, 1973	Near Threatened	VU ↓ NT	D2
<i>Ochotona ladacensis</i> (Gunther, 1875)	Least Concern		
<i>Ochotona macrotis</i> (Gunther, 1875)	Least Concern		
<i>Ochotona nubrica</i> Thomas, 1922	Data Deficient		
<i>Ochotona roylei</i> (Ogilby, 1839)	Least Concern		
<i>Ochotona rufescens</i> (Gray, 1842)	Least Concern		
<i>Ochotona thibetana</i> (Milne-Edwards, 1871)	Vulnerable	EN ↓ VU	B2ab(iii)
Pholidota			
Manidae			
<i>Manis pentadactyla</i> Linnaeus, 1758	Vulnerable		B2ab(ii,iii)
Rodentia			
Calomyscidae			
<i>Calomyscus baluchi</i> Thomas, 1920	Least Concern		
Cricetidae			
<i>Cricetulus alticola</i> Thomas, 1917	Near Threatened	VU ↓ NT	B1ab(ii)+2ab(iii)
<i>Cricetulus migratorius</i> (Pallas, 1773)	Least Concern		
Dipodidae			
<i>Allactaga elater</i> (Lichtenstein, 1828)	Least Concern		
<i>Allactaga hotsoni</i> Thomas, 1920	Least Concern		
<i>Jaculus blanfordi</i> (Murray, 1884)	Least Concern		
<i>Salpingotus michaelis</i> Fitzgibbon, 1966	Near Threatened	VU ↓ NT	D2
<i>Sicista concolor</i> (Buchner, 1892)	Least Concern		
Gliridae			
<i>Dryomys nitedula</i> (Pallas, 1778)	Vulnerable	EN ↓ VU	B1ab(ii,iii)+2ab(ii,iii)
Hystricidae			
<i>Atherurus macrourus</i> (Linnaeus, 1758)	Near Threatened		

Scientific name	Status		Criteria
<i>Hystrix brachyura</i> Linnaeus, 1758	Near Threatened		
<i>Hystrix indica</i> (Kerr, 1792)	Least Concern		
Muridae			
<i>Acomys dimidiatus</i> (Cretzschmar, 1826)	Least Concern		
<i>Alticola argentatus</i> (Severtzov, 1879)	Least Concern		
<i>Alticola stoliczkanus</i> (Blanford, 1875)	Least Concern		
<i>Alticola stracheyi</i> (Thomas, 1880)	Least Concern		
<i>Apodemus draco</i> (Barrett-Hamilton, 1900)	Near Threatened	VU ↓ NT	B1ab(iii)+2ab(iii)
<i>Apodemus latronum</i> (Thomas, 1911)	Data Deficient		
<i>Apodemus orestes</i> (Thomas, 1911)	Near Threatened	VU ↓ NT	D2
<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	Least Concern		
<i>Bandicota bengalensis</i> (Gray & Hardwicke, 1833)	Least Concern		
<i>Bandicota indica</i> (Bechstein, 1800)	Least Concern		
<i>Berylmys bowersi</i> (Anderson, 1879)	Least Concern		
<i>Berylmys mackenziei</i> (Thomas, 1916)	Least Concern		
<i>Berylmys manipulus</i> (Thomas, 1916)	Least Concern		
<i>Cannomys badius</i> (Hodgson, 1841)	Near Threatened		
<i>Chiropodomys gliroides</i> (Blyth, 1856)	Near Threatened	VU ↓ NT	B1ab(ii,iii)+2ab(ii,iii)
<i>Dacnomys millardi</i> Thomas, 1916	Near Threatened	VU ↓ NT	B2ab(iii)
<i>Diomys crumpi</i> Thomas, 1917	Endangered		B1ab(iii)+2ab(iii)
<i>Ellobius fuscocapillus</i> (Blyth, 1842)	Vulnerable	EN ↓ VU	B1ab(ii,iii)+2ab(ii,iii)
<i>Eothenomys melanogaster</i> (Milne-Edwards, 1871)	Vulnerable	EN ↓ VU	B1ab(ii,iii)+2ab(ii,iii)
<i>Gerbillus aquilus</i> Schlitter & Stezer, 1972	Data Deficient		
<i>Gerbillus cheesmani</i> Thomas, 1919	Least Concern		
<i>Gerbillus nanus</i> Blanford, 1875	Least Concern		
<i>Golunda ellioti</i> Gray, 1837	Least Concern		
<i>Hydromys humei</i> (Thomas, 1886)	Vulnerable	EN ↓ VU	B1ab(iii)+2ab(iii)
<i>Leopoldamys edwardsi</i> (Thomas, 1882)	Near Threatened	VU ↓ NT	B2ab(ii,iii)
<i>Leopoldamys sabanus</i> (Thomas, 1887)	Data Deficient		
<i>Meriones crassus</i> Sundevall, 1842	Near Threatened		
<i>Meriones hurrianae</i> (Jerdon, 1867)	Near Threatened		
<i>Meriones lybicus</i> Lichtenstein, 1823	Least Concern		
<i>Meriones persicus</i> (Blanford, 1875)	Near Threatened	VU ↓ NT	B2ab(ii,iii)
<i>Micromys minutus</i> (Pallas, 1771)	Least Concern		
<i>Microtus juldaschi</i> (Severtzov, 1879)	Vulnerable	EN ↓ VU	B1ab(iii)+2ab(iii)
<i>Microtus leucurus</i> (Blyth, 1863)	Least Concern		
<i>Microtus sikimensis</i> (Hodgson, 1849)	Least Concern		
<i>Mus booduga</i> (Gray, 1837)	Least Concern		
<i>Mus cervicolor</i> Hodgson, 1845	Least Concern		
<i>Mus cookii</i> Ryley, 1914	Least Concern		
<i>Mus musculus</i> Linnaeus, 1758	Least Concern		
<i>Mus pahari</i> Thomas, 1916	Least Concern		
<i>Mus phillipsi</i> Wroughton, 1912	Least Concern		
<i>Nesokia indica</i> (Gray & Hardwicke, 1832)	Least Concern		
<i>Niviventer brahma</i> (Thomas, 1914)	Vulnerable	EN ↓ VU	B1ab(iii)+2ab(iii)
<i>Niviventer eha</i> (Wroughton, 1916)	Least Concern		
<i>Niviventer fulvescens</i> (Gray, 1847)	Least Concern		
<i>Niviventer langbianis</i> (Robinson & Kloss, 1922)	Endangered	CR ↓ EN	B1ab(iii)+2ab(iii)
<i>Niviventer niviventer</i> (Hodgson, 1836)	Least Concern		
<i>Niviventer tenaster</i> (Thomas, 1916)	Data Deficient		
<i>Rattus exulans</i> (Peale, 1848)	Data Deficient		
<i>Rattus nitidus</i> (Hodgson, 1845)	Least Concern		
<i>Rattus norvegicus</i> (Berkenhout, 1769)	Not Evaluated		
<i>Rattus rattus</i> (Linnaeus, 1758)	Least Concern		

Scientific name	Status	Criteria
<i>Rattus sikkimensis</i> (Hinton, 1919)	Least Concern	
<i>Rattus tanezumi</i> (Temminck, 1844)	Not Evaluated	
<i>Rattus turkestanicus</i> (Satunin, 1903)	Least Concern	
<i>Rhizomys pruinosus</i> Blyth, 1851	Endangered	B2ab(ii,iii)
<i>Rhombomys opimus</i> (Lichtenstein, 1823)	Vulnerable	EN ↓ VU B2ab(iii)
<i>Tatera indica</i> (Hardwicke, 1807)	Least Concern	
<i>Vandeleuria oleracea</i> (Bennett, 1832)	Least Concern	
Sciuridae		
<i>Belomys pearsonii</i> (Gray, 1842)	Vulnerable	A3c+4c
<i>Callosciurus erythraeus</i> (Pallas, 1799)	Least Concern	
<i>Callosciurus pygerythrus</i> (l. Geoffroy Saint Hillaire, 1831)	Least Concern	
<i>Dremomys lokriah</i> (Hodgson, 1836)	Least Concern	
<i>Dremomys pernyi</i> (Milne-Edwards, 1867)	Near Threatened	VU ↓ NT B2ab(ii,iii)
<i>Dremomys rufigenis</i> (Blanford, 1878)	Vulnerable	EN ↓ VU B2ab(iii)
<i>Eupetaurus cinereus</i> Thomas, 1888	Endangered	B1ab(iii)+2ab(iii)
<i>Funambulus pennantii</i> Wroughton, 1905	Least Concern	
<i>Hylomys alboniger</i> (Hodgson, 1836)	Near Threatened	
<i>Hylomys baberi</i> (Blyth, 1847)	Vulnerable	B1ab(iii)
<i>Marmota caudata</i> (Geoffroy, 1844)	Near Threatened	
<i>Marmota himalayana</i> (Hodgson, 1841)	Least Concern	
<i>Petaurista caniceps</i> (Gray, 1842)	Near Threatened	VU ↓ NT B2ab(ii,iii)
<i>Petaurista magnificus</i> (Hodgson, 1836)	Vulnerable	A2c+3c+4c;B1ab(ii,iii)
<i>Petaurista petaurista</i> (Pallas, 1766)	Near Threatened	
<i>Petaurista philippensis</i> (Elliot, 1839)	Near Threatened	
<i>Ratufa bicolor</i> (Sparrman, 1778)	Least Concern	
<i>Tamiops maccllellandi</i> (Horsfield, 1840)	Least Concern	
Scandentia		
Tupaiaidae		
<i>Tupaia belangeri</i> (Wagner, 1841)	Near Threatened	

The down arrow indicates the downgrading of the status of a South Asian non-endemic species as per the IUCN Regional Guidelines (2003; Version. 3.1) when it is understood or inferred that the condition of the species within South Asia and/or the status of the species in the neighbouring region(s) is relatively safe, thereby necessitating this action for the status within South Asia. For species whose final status is Near Threatened, downgraded from Vulnerable, the criteria is included to indicate why the species was assessed as Vulnerable in the first step of assessment before applying the steps for regional categorisation.

Sixty-two species (33.5%) of the 185 NVSMs are endemic to South Asia. Their representation in different countries within the region is indicated in Table 5. India tops the list with 26 endemic NVSM species followed by Sri Lanka with 10 endemic NVSMs. Nepal and Pakistan have one endemic NVSM species each, while 24 NVSM species are distributed in more than one country within South Asia. India and Sri Lanka have 24 common species of NVSMs, but have been assessed separately as two populations - mainland population and island population. There are six species of NVSMs that are endemic to southern India and Sri Lanka, which have been assessed separately for the two populations. A global assessment for the species has been included as well. Comparing the status of endemics within India and Sri Lanka, all (100%) NVSMs in Sri Lanka are threatened while 18 (69%) of the Indian taxa are threatened. In all 38 of the 62 endemic South Asian NVSMs are threatened (61%)! Restricted distribution and rapid habitat degradation are the main reasons for threatened endemic NVSMs in South Asia accompanied by other specific threats to the quantity and/or quality of habitats.

Seventeen of the 123 nonendemic NVSM species (14%) were assessed as threatened in South Asia. Regional guidelines of the IUCN Red List Criteria were applied as per IUCN (2003; Version 3.0). Mainly distributed in the northern and northeastern parts of India and in Bangladesh, Bhutan, Nepal and Pakistan, these taxa have a range extending into middle eastern Asia, central Asia and Europe, China or into southeastern Asia. Since in most cases, distribution of the species is fragmented due to various reasons, the status in South Asia either retained the global status for the species or increased the level of threat category in case of the South Asian population being a sink.

Table 5: Distribution of NVSMs in South Asia indicating presence in countries within.

Scientific name	Endemic to	Ban	Bhu	Ind	Nep	Pak	Sri
Erinaceomorpha							
Erinaceidae							
<i>Hemiechinus auritus</i> (Gmelin, 1770)						✓	
<i>Hemiechinus collaris</i> (Gray, 1830)	South Asia			✓		✓	
<i>Hemiechinus hypomelas</i> (Brandt, 1836)						✓	
<i>Hemiechinus micropus</i> (Blyth, 1846)	South Asia			✓		✓	
<i>Hemiechinus nudiventris</i> (Horsfield, 1851)	India			✓			
Lagomorpha							
Leporidae							
<i>Caprolagus hispidus</i> (Pearson, 1839)	South Asia	✓		✓	✓		
<i>Lepus capensis</i> Linnaeus, 1758				✓		✓	
<i>Lepus nigricollis</i> Cuvier, 1823	South Asia	✓	✓	✓	✓	✓	✓
<i>Lepus oiostolus</i> Hodgson, 1840				✓	✓		
<i>Lepus tolai</i> Pallas, 1778				✓			
Ochotonidae							
<i>Ochotona curzoniae</i> (Hodgson, 1858)				✓	✓		
<i>Ochotona forresti</i> Thomas, 1923			✓	✓			
<i>Ochotona himalayana</i> Feng, 1973					✓		
<i>Ochotona ladacensis</i> (Gunther, 1875)				✓		✓	
<i>Ochotona macrotis</i> (Gunther, 1875)			✓	✓	✓	✓	
<i>Ochotona nubrica</i> Thomas, 1922				✓	✓		
<i>Ochotona roylei</i> (Ogilby, 1839)				✓	✓	✓	
<i>Ochotona rufescens</i> (Gray, 1842)						✓	
<i>Ochotona thibetana</i> (Milne-Edwards, 1871)			✓	✓			
Pholidota							
Manidae							
<i>Manis crassicaudata</i> (Gray, 1827)	South Asia	✓		✓	✓	✓	✓
<i>Manis pentadactyla</i> Linnaeus, 1758				✓	✓		
Rodentia							
Calomyscidae							
<i>Calomyscus baluchi</i> Thomas, 1920						✓	
<i>Calomyscus hotsoni</i> Thomas, 1920	Pakistan					✓	
Cricetidae							
<i>Cricetulus alticola</i> Thomas, 1917				✓	✓		
<i>Cricetulus migratorius</i> (Pallas, 1773)				✓		✓	
Dipodidae							
<i>Allactaga elater</i> (Lichtenstein, 1828)						✓	
<i>Allactaga hotsoni</i> Thomas, 1920						✓	
<i>Jaculus blanfordi</i> (Murray, 1884)						✓	
<i>Salpingotus michaelis</i> Fitzgibbon, 1966						✓	
<i>Sicista concolor</i> (Buchner, 1892)				✓		✓	
Gliridae							
<i>Dryomys nitedula</i> (Pallas, 1778)						✓	
Hystriidae							
<i>Atherurus macrourus</i> (Linnaeus, 1758)		✓		✓			
<i>Hystrix brachyura</i> Linnaeus, 1758		✓		✓	✓		

Scientific name	Endemic to	Ban	Bhu	Ind	Nep	Pak	Sri
<i>Hystrix indica</i> (Kerr, 1792)		✓		✓	✓	✓	✓
Muridae							
<i>Acomys dimidiatus</i> (Cretzschmar, 1826)						✓	
<i>Alticola albicauda</i> (True, 1894)	India			✓			
<i>Alticola argentatus</i> (Severtzov, 1879)				✓		✓	
<i>Alticola blanfordi</i> (Scully, 1880)	India			✓			
<i>Alticola montosa</i> (True, 1894)	South Asia			✓		✓	
<i>Alticola roylei</i> (Gray, 1842)	India			✓			
<i>Alticola stoliczkanus</i> (Blanford, 1875)			✓	✓	✓		
<i>Alticola stracheyi</i> (Thomas, 1880)				✓	✓		
<i>Apodemus draco</i> (Barrett-Hamilton, 1900)				✓			
<i>Apodemus gurkha</i> Thomas, 1924	Nepal				✓		
<i>Apodemus latronum</i> (Thomas, 1911)				✓			
<i>Apodemus orestes</i> (Thomas, 1911)				✓			
<i>Apodemus sylvaticus</i> (Linnaeus, 1758)				✓	✓	✓	
<i>Bandicota bengalensis</i> (Gray & Hardwicke, 1833)		✓		✓	✓	✓	✓
<i>Bandicota indica</i> (Bechstein, 1800)		✓		✓	✓		✓
<i>Bandicota maxima</i> Pradhan <i>et al.</i> 1993	India			✓			
<i>Berylmys bowersi</i> (Anderson, 1879)				✓			
<i>Berylmys mackenziei</i> (Thomas, 1916)				✓			
<i>Berylmys manipulus</i> (Thomas, 1916)				✓			
<i>Cannomys badius</i> (Hodgson, 1841)				✓	✓		
<i>Chiropodomys gliroides</i> (Blyth, 1856)				✓			
<i>Cremnomys blanfordi</i> (Thomas, 1881)	South Asia	✓		✓			✓
<i>Cremnomys cutchicus</i> Wroughton, 1912	India			✓			
<i>Cremnomys elvira</i> (Ellerman, 1947)	India			✓			
<i>Dacnomys millardi</i> Thomas, 1916				✓	✓		
<i>Diomys crumpi</i> Thomas, 1917				✓	✓		
<i>Ellobius fuscocapillus</i> (Blyth, 1842)						✓	
<i>Eothenomys melanogaster</i> (Milne-Edwards, 1871)				✓			
<i>Gerbillus aquilus</i> Schlitter & Stezer, 1972						✓	
<i>Gerbillus cheesmani</i> Thomas, 1919						✓	
<i>Gerbillus gleadowi</i> Murray, 1886	South Asia			✓		✓	
<i>Gerbillus nanus</i> Blanford, 1875				✓		✓	
<i>Golunda ellioti</i> Gray, 1837				✓	✓	✓	✓
<i>Hadromys humei</i> (Thomas, 1886)				✓			
<i>Hyperacrius fertilis</i> (True, 1894)	South Asia			✓		✓	
<i>Hyperacrius wynnei</i> (Blanford, 1881)	South Asia			✓		✓	
<i>Leopoldamys edwardsi</i> (Thomas, 1882)				✓			
<i>Leopoldamys sabanus</i> (Thomas, 1887)		✓		✓			
<i>Meriones crassus</i> Sundevall, 1842						✓	
<i>Meriones hurrianae</i> (Jerdon, 1867)				✓		✓	
<i>Meriones lybicus</i> Lichtenstein, 1823						✓	
<i>Meriones persicus</i> (Blanford, 1875)						✓	
<i>Micromys minutus</i> (Pallas, 1771)				✓			
<i>Microtus juldaschi</i> (Severtzov, 1879)						✓	
<i>Microtus leucurus</i> (Blyth, 1863)				✓	✓		
<i>Microtus sikimensis</i> (Hodgson, 1849)			✓	✓	✓		
<i>Millardia gleadowi</i> (Murray, 1885)	South Asia			✓		✓	
<i>Millardia kondana</i> Mishra & Dhanda, 1975	India			✓			
<i>Millardia meltada</i> (Gray, 1837)	South Asia			✓	✓	✓	✓
<i>Mus booduga</i> (Gray, 1837)		✓		✓	✓	✓	✓
<i>Mus cervicolor</i> Hodgson, 1845				✓	✓	✓	✓
<i>Mus cookii</i> Ryley, 1914		✓	✓	✓	✓		
<i>Mus famulus</i> Bonhote, 1898	India			✓			

Scientific name	Endemic to	Ban	Bhu	Ind	Nep	Pak	Sri
<i>Mus fernandoni</i> (Phillips, 1932)	Sri Lanka						✓
<i>Mus mayori</i> (Thomas, 1915)	Sri Lanka						✓
<i>Mus musculus</i> Linnaeus, 1758		✓	✓	✓	✓	✓	✓
<i>Mus pahari</i> Thomas, 1916			✓	✓			
<i>Mus phillipsi</i> Wroughton, 1912				✓	✓		
<i>Mus platythrix</i> Bennet, 1832	India			✓			
<i>Mus saxicola</i> Elliot, 1839	South Asia			✓	✓	✓	
<i>Nesokia indica</i> (Gray & Hardwicke, 1832)		✓		✓	✓	✓	
<i>Niviventer brahma</i> (Thomas, 1914)				✓			
<i>Niviventer eha</i> (Wroughton, 1916)				✓	✓		
<i>Niviventer fulvescens</i> (Gray, 1847)				✓	✓	✓	
<i>Niviventer langbianis</i> (Robinson & Kloss, 1922)				✓			
<i>Niviventer niviventer</i> (Hodgson, 1836)			✓	✓	✓		
<i>Niviventer tenaster</i> (Thomas, 1916)				✓			
<i>Rattus burrus</i> (Miller, 1902)	India			✓			
<i>Rattus exulans</i> (Peale, 1848)		✓					
<i>Rattus montanus</i> Phillips, 1932	Sri Lanka						✓
<i>Rattus nitidus</i> (Hodgson, 1845)		✓	✓	✓	✓		
<i>Rattus norvegicus</i> (Berkenhout, 1769)				✓		✓	✓
<i>Rattus palmarum</i> (Zelebor, 1869)	India			✓			
<i>Rattus ranjini</i> Agrawal & Ghosh, 1969	India			✓			
<i>Rattus rattus</i> (Linnaeus, 1758)		✓	✓	✓	✓	✓	✓
<i>Rattus sikkimensis</i> (Hinton, 1919)				✓	✓		
<i>Rattus stoicus</i> (Miller, 1902)	India			✓			
<i>Rattus tanezumi</i> (Temminck, 1844)			✓	✓	✓	✓	
<i>Rattus turkestanicus</i> (Satunin, 1903)		✓	✓	✓	✓	✓	
<i>Rattus vicerex</i> (Bonhote, 1903)	South Asia			✓		✓	
<i>Rhizomys pruinosus</i> Blyth, 1851				✓			
<i>Rhombomys opimus</i> (Lichtenstein, 1823)						✓	
<i>Srilankamys ohiensis</i> (Phillips, 1929)	Sri Lanka						✓
<i>Tatera indica</i> (Hardwicke, 1807)				✓	✓	✓	✓
<i>Vandeleuria nolthenii</i> (Phillips, 1929)	Sri Lanka						✓
<i>Vandeleuria oleracea</i> (Bennett, 1832)		✓	✓	✓	✓		✓
Platacanthomyidae							
<i>Platacanthomys lasiurus</i> Blyth, 1859	India			✓			
Sciuridae							
<i>Belomys pearsonii</i> (Gray, 1842)			✓	✓	✓		
<i>Biswamoyopterus biswasi</i> Saha, 1981	India			✓			
<i>Callosciurus erythraeus</i> (Pallas, 1799)		✓	✓	✓			
<i>Callosciurus pygerythrus</i> (I. G. Saint-Hilaire, 1831)		✓	✓	✓	✓		
<i>Dremomys lokriah</i> (Hodgson, 1836)		✓	✓	✓	✓		
<i>Dremomys pernyi</i> (Milne-Edwards, 1867)				✓			
<i>Dremomys rufigenis</i> (Blanford, 1878)				✓			
<i>Eoglaucomyus fimbriatus</i> (Gray, 1837)	South Asia			✓		✓	
<i>Eupetaurus cinereus</i> Thomas, 1888				✓		✓	
<i>Funambulus layardi</i> (Blyth, 1849)	Sri Lanka						✓
<i>Funambulus palmarum</i> (Linnaeus, 1766)	South Asia			✓			✓
<i>Funambulus pennantii</i> Wroughton, 1905		✓		✓	✓	✓	
<i>Funambulus sublineatus</i> (Waterhouse, 1838)	South Asia			✓			✓
<i>Funambulus tristriatus</i> (Waterhouse, 1837)	India			✓			
<i>Hylopetes alboniger</i> (Hodgson, 1836)			✓	✓	✓		
<i>Hylopetes aberi</i> (Blyth, 1847)				✓		✓	
<i>Marmota caudata</i> (Geoffroy, 1844)				✓		✓	
<i>Marmota himalayana</i> (Hodgson, 1841)				✓	✓	✓	

Scientific name	Endemic to	Ban	Bhu	Ind	Nep	Pak	Sri
<i>Petaurista caniceps</i> (Gray, 1842)			✓	✓	✓		
<i>Petaurista magnificus</i> (Hodgson, 1836)			✓	✓	✓		
<i>Petaurista nobilis</i> Gray, 1842	South Asia		✓	✓	✓		
<i>Petaurista petaurista</i> (Pallas, 1766)		✓		✓	✓	✓	
<i>Petaurista philippensis</i> (Elliot, 1839)				✓			✓
<i>Petinomys fuscocapillus</i> (Jerdon, 1847)	South Asia			✓			✓
<i>Ratufa bicolor</i> (Sparrman, 1778)		✓	✓	✓	✓		
<i>Ratufa indica</i> (Erxleben, 1777)	India			✓			
<i>Ratufa macroura</i> (Pennant, 1769)	South Asia			✓			✓
<i>Tamias macclellandi</i> (Horsfield, 1840)			✓	✓	✓		
Scandentia							
Tupaiaidae							
<i>Anathana ellioti</i> (Waterhouse, 1850)	India			✓			
<i>Tupaia belangeri</i> (Wagner, 1841)		✓	✓	✓			
<i>Tupaia nicobarica</i> (Zelevor, 1869)	India			✓			
Soricomorpha							
Soricidae							
<i>Anourosorex squamipes</i> Milne-Edwards, 1872			✓	✓			
<i>Chimmarogale himalayica</i> (Gray, 1842)				✓	✓		
<i>Crociodura andamanensis</i> Miller, 1902	India			✓			
<i>Crociodura attenuata</i> Milne-Edwards, 1872			✓	✓	✓		
<i>Crociodura gueldenstaedtii</i> (Pallas, 1811)				✓		✓	
<i>Crociodura hispida</i> Thomas, 1913	India			✓			
<i>Crociodura horsfieldi</i> (Tomes, 1856)				✓	✓		✓
<i>Crociodura jenkinsi</i> Chakraborty, 1978	India			✓			
<i>Crociodura leucodon</i> (Hermann, 1780)				✓			
<i>Crociodura miya</i> Phillips, 1929	Sri Lanka						✓
<i>Crociodura nicobarica</i> Miller, 1902	India			✓			
<i>Crociodura pergrisea</i> Miller, 1913	India			✓			
<i>Crociodura zarudnyi</i> Ognev, 1928						✓	
<i>Feroculus feroculus</i> (Kelaart, 1850)	South Asia			✓			✓
<i>Nectogale elegans</i> Milne-Edwards, 1870				✓	✓		
<i>Solisorex pearsonii</i> Thomas, 1924	Sri Lanka						✓
<i>Sorex bedfordiae</i> Thomas, 1911					✓		
<i>Sorex excelsus</i> Allen, 1923					✓		
<i>Sorex minutus</i> Linnaeus, 1766				✓	✓	✓	
<i>Sorex planiceps</i> Miller, 1911	South Asia			✓		✓	
<i>Soriculus caudatus</i> (Horsfield, 1851)				✓	✓		
<i>Soriculus leucops</i> (Hodgson, 1855)				✓	✓		
<i>Soriculus macrurus</i> Blanford, 1888				✓	✓		
<i>Soriculus nigriscens</i> (Gray, 1842)			✓	✓	✓		
<i>Suncus dayi</i> (Dobson, 1888)	India			✓			
<i>Suncus etruscus</i> (Savi, 1822)			✓	✓	✓	✓	✓
<i>Suncus fellowesgordoni</i> Phillips, 1932	Sri Lanka						✓
<i>Suncus montanus</i> (Kelaart, 1850)	South Asia			✓			✓
<i>Suncus murinus</i> (Linnaeus, 1766)		✓	✓	✓	✓	✓	✓
<i>Suncus stoliczkanus</i> (Anderson, 1877)	South Asia			✓	✓	✓	
<i>Suncus zeylanicus</i> Phillips, 1928	Sri Lanka						✓
Talpidae							
<i>Euroscaptor micrura</i> (Hodgson, 1841)			✓	✓	✓		
<i>Parascaptor leucura</i> (Blyth, 1850)		✓		✓			
		28	32	150	70	68	35

Threats

No NVSM with restricted distribution is beyond threat. All Critically Endangered, Endangered and Vulnerable species are under severe pressure due to a variety of threats impacting them, while the non-threatened taxa still face threats of some kind. Table 6 lists all threats identified for the taxa that were assessed at the workshop, and the specific threats are listed in Table 7.

Habitat loss due to such reasons as logging, agriculture, development, habitation, industry, commerce and fragmentation has resulted in many taxa being threatened, some as seriously as being assessed as Critically Endangered or Endangered. Approximately 74% of the threats are habitat-related and the remaining are population-related. NVSMs are under tremendous pressure because of continuing decline in habitat, which is obvious in almost all regions. Northeastern India and Bangladesh face a continuing crisis with loss of habitat due to such factors as illegal encroachments, clear-felling for human settlements, logging for firewood and mining. This has resulted in many forested areas becoming fragmented and inhospitable for some arboreal and specialized NVSMs. In various cases, the degree of threat to the habitat is reflected in very small population numbers in restricted areas of specialized rodents such as giant squirrels and gliding squirrels. Squirrels and tree shrews are inherently shy and require a fair component of healthy habitat including canopy trees and food trees for maintaining a viable group size, and for dispersal. Lack of continuous forests in the northeast and many parts of central and southern India and Sri Lanka has affected the population dynamics, which is now a major threat. Habitat loss in the past has resulted in reduced numbers of squirrels currently. The Western Ghats has lost nearly half its forests in the last 60 years, forests that used to be home for giant and gliding squirrels.

Loss of habitat quality is another major threat identified for almost all NVSM taxa, although the effects of change in quality is not reflected in threat perception of a taxon. Man-made fires, collection of non-timber forest produce, eco-tourism, human settlements in and around forests, poor management practices and other activities can cause changes to the quality of habitat, which in turn has a negative effect on many specialized NVSM species.

Population declines are of concern with respect to giant squirrels in India. Due to loss of habitat over many years in the past, population trends were assessed based on correlations with habitat trends. Although no statistical interpretation was carried out to correlate the two, an understanding of the extent of habitat available in the past to that in the present gives an indication of the population trends.

Table 6: Summary of threats identified broadly for NVSMs in South Asia.

Threats	# of species
Habitat loss	94
Habitat fragmentation	2
Agricultural practices – use of pesticides	18
Pest control activities	2
Hunting	39
Natural predators	29
Domestic predators	14
Forest fire	34
Small-scale logging	43
Alien species	15
Natural calamities	25 [Landslides; Floods; Drought; Tsunami]
Plantation [non-wood, commercial crops]	17
Restricted range	2
Expansion of human settlements	26
Clear-cutting of forests	13
Illegal timber extraction	3
Expansion of agriculture	16
Construction of dams	9
Road kills	3
Pets/pet trade	2
Research	3
Civil unrest/war	9
Fuelwood collection	8
Livestock grazing	12
Shifting/Jhum cultivation practices	17
Infrastructure development	11 [road laying, power lines, construction of canals]
Military base/army establishments	3
Anthropogenic activities	18 [mining, direct human disturbance, quarrying]
Effect of existing canal networks	3

Table 7: Threats affecting NVSMs in South Asia.

Taxon	Threats
Erinaceomorpha	
Erinaceidae	
<i>Hemiechinus collaris</i>	Habitat fragmentation due to road laying activities, hunting for consumption and medical use
<i>Hemiechinus micropus</i>	Habitat loss due to road laying, alien species (<i>Prosopis juliflora</i>) invasion, natural predators and hunting
<i>Hemiechinus nudiventris</i>	Small-scale logging, fuel-wood collection, agricultural practices and pesticide use
Lagomorpha	
Leporidae	
<i>Caprolagus hispidus</i>	Habitat loss and degradation due to agricultural expansion, non-farm land management, invasive alien species, fires, floods, natural predators, and human disturbance due to research activities, civil unrest and harvest for local consumption
<i>Lepus capensis</i>	Habitat loss and degradation and civil unrest
<i>Lepus nigricollis</i>	Habitat loss and degradation due to non-farm management, harvest by locals for subsistence use, natural calamities, competitors as livestock, natural and domestic predators and intentional forest fires
<i>Lepus oiostolus</i>	Habitat loss and degradation due to small-scale logging, fuel wood collection, and harvesting by locals for subsistence use
Ochotonidae	
<i>Ochotona curzoniae</i>	Habitat loss due to small-scale logging and fuel wood collection
<i>Ochotona ladacensis</i>	Pest control activities
<i>Ochotona macrotis</i>	Upland grazing by livestock and natural predators
<i>Ochotona roylei</i>	Small scale logging, fuel wood collection, upland grazing by livestock and natural predators
<i>Ochotona rufescens</i>	Pest control activities and natural predators
<i>Ochotona thibetana</i>	Habitat loss due to small-scale logging in bamboo and rhododendron patches, livestock grazing and natural as well as domesticated predators
Pholidota	
Manidae	
<i>Manis crassicaudata</i>	Habitat loss and degradation due to expansion of agriculture, alteration of habitat due to plantations, non-timber plantations, increase in human settlements, construction of dams, forest fires, pest control practices, also is harvested for local consumption and medicinal purposes by trapping, netting and snaring
<i>Manis pentadactyla</i>	Pest control practices, harvesting for local consumption and medicinal purposes, the scales of this species are used for making handicrafts

Taxon	Threats
Rodentia	
Dipodidae	
<i>Jaculus blanfordi</i>	In Syria, this species is used in falconery, it is assumed that the same might be its fate in Pakistan
Gliridae	
<i>Dryomys nitedula</i>	Habitat loss and degradation due to small-scale logging of juniper, natural predators and disease due to pathogens and parasites
Hystriidae	
<i>Atherurus macrourus</i>	Habitat loss due to jhum/shifting agriculture, small-scale logging, subsistence use harvest for food and accidental mortality due to collections
<i>Hystrix brachyura</i>	Habitat loss due to construction of dams, power lines, and other infrastructure development; harvested for medicinal purposes and accidental mortality due to trapping, snaring, netting and shooting
<i>Hystrix indica</i>	Habitat loss due to construction of dams, livestock grazing, harvested for local consumption and medicinal purposes and accidental mortality due to trapping, snaring, netting, shooting, poisoning, pest control practices, human induced disturbances, road kills and poaching
Muridae	
<i>Alticola argentatus</i>	High altitude livestock grazing
<i>Alticola blanfordi</i>	High altitude livestock grazing
<i>Alticola montosa</i>	Anthropogenic activities and military disturbance
<i>Alticola roylei</i>	Habitat loss due to livestock grazing, human settlements, and natural disaster like avalanche and landslides
<i>Alticola stoliczkanus</i>	Habitat loss due to infrastructure (road) development and increase in human settlements
<i>Apodemus draco</i>	Jhum/shifting agriculture
<i>Apodemus gorkha</i>	Agriculture and harvesting by locals for consumption
<i>Apodemus sylvaticus</i>	Habitat under anthropogenic pressures
<i>Bandicota bengalensis</i>	Pest control activities
<i>Bandicota indica</i>	Pest control activities and change in land use pattern
<i>Bandicota maxima</i>	Pest control activities
<i>Cannomys badius</i>	Habitat loss due to jhum cultivation, forest fire and harvesting for subsistence use
<i>Chiropodomys gliroides</i>	Habitat loss due to jhum cultivation, small-scale logging, forest fire, clearing of bamboo patches, expansion of human settlements and construction of dams
<i>Cremonomys cutchicus</i>	Expansion of agriculture

Taxon	Threats
<i>Cremnomys elvira</i>	Habitat loss conversion of forests to agriculture lands and plantations and fuel-wood collection
<i>Cricetulus alticola</i>	Habitat loss due to expansion of human settlements and army camps
<i>Cricetulus migratorius</i>	Habitat loss due to small-scale logging and defence establishments
<i>Diomys crumpi</i>	Shifting agriculture, however, not enough information exists to predict the effect of threats on this taxon
<i>Ellobius fuscocapillus</i>	Natural calamities such as drought, wildfires, avalanches and landslides
<i>Eothenomys melanogaster</i>	Habitat loss and degradation due to expansion of agriculture, small-scale logging and human settlements
<i>Gerbillus gleadowi</i>	Habitat loss and degradation due to small-holder farming, livestock grazing; presence of alien species and predators; pollution due to excessive use of pesticides and disturbance due to human activities and transport. The major threat for the habitat is the construction of the Indira Gandhi Canal. Initially the species might benefit due to grazing as the habitat structure improves for it (sand becomes loose) but later due to heavy grazing the plant productivity (seed production) will be affected and hence the population will decline. Grazing also breaks up the mounds which affect the burrowing behaviour. Probably more patchily distributed due to the canal
<i>Gerbillus nanus</i>	Habitat loss and degradation due to livestock grazing, mismanagement of non-farm lands, small scale logging and harvesting of this species for local consumption. The major threat for the habitat is the construction of the Indira Gandhi Canal
<i>Golunda ellioti</i>	Habitat loss and degradation due to mining, stone quarrying, infrastructure development, invasion of alien plant species thereby directly impacting the habitat, pest control practices, natural disasters in the form of floods, storms, fire and improper management of grasslands. Harvested for local consumption
<i>Hyperacrius wyneii</i>	Habitat loss and degradation due to agro-industries, expansion of farming, apple orchards, potato crops, increase in human settlements and expansion of agricultural lands
<i>Leopoldamys edwardsi</i>	Habitat loss and degradation due to small-scale logging, non-farm land management and harvest for local consumption
<i>Leopoldamys sabanus</i>	Habitat loss and degradation due to shifting agriculture and small-scale logging
<i>Meriones crassus</i>	Natural disasters, drought, human disturbance in the form of civil unrest and war
<i>Meriones hurrianae</i>	Habitat loss or degradation due to expansion of agriculture, small-scale logging, invasion of alien plant species directly impacting the habitat, collection of fuelwood, pest control practices, natural disasters like drought, floods, drowning and other edaphic changes and competitors in the form of other species
<i>Meriones lybicus</i>	Habitat loss due to drought

Taxon	Threats
<i>Meriones persicus</i>	Natural disasters in the form of drought
<i>Micromys minutus</i>	Habitat loss and degradation due to small-scale logging and expansion of agriculture
<i>Microtus juldaschi</i>	Habitat loss and degradation due to natural disasters in the form of avalanches and landslides
<i>Microtus sikimensis</i>	Habitat loss and degradation due to small-scale logging, invasive alien species (directly impacting the habitat), and to some extent domestic dogs and cats pose threat to this species. This species ventures very less out in the open and is mostly found frequenting tunnels
<i>Millardia meltada</i>	Habitat loss and degradation due to infrastructure development, invasive alien species, exotic plants, harvest for local consumption, accidental mortality by poisoning, pest control practices, pesticides used in agriculture, drowning, domestic and wild predators, and also due to pathogens or parasites
<i>Mus booduga</i>	Habitat loss and degradation due to expansion of agricultural activities, livestock grazing, non-farm activities, accidental mortality due to poisoning, pest control practices, natural disasters such as, drought, storms, flood, habitat change, persecution by domestic predators and harvested for local consumption purposes
<i>Mus cervicolor</i>	Habitat loss or degradation due to invasive alien species, harvest for local consumption, natural disasters like storms and flood
<i>Mus fernandoni</i>	Increased use of pesticides in agriculture, human disturbance and presence of domestic predators
<i>Mus mayori</i>	Deforestation due to expansion of farm lands, human encroachments and presence of domestic predators
<i>Mus musculus</i>	Habitat loss and degradation due to infrastructure development, accidental mortality due to poisoning, pest control activities, excessive use of pesticides, habitat alteration, natural disasters in the form of drought, fire and interspecific competition
<i>Mus platythrix</i>	Habitat loss or degradation due to expansion of agriculture, human encroachments, pest control practices, agricultural pollution and natural calamities like fire
<i>Nesokia indica</i>	Habitat loss and degradation due to irrigation canals leading to change in native species
<i>Niviventer brahma</i>	Habitat loss and degradation due to natural disasters in the form of avalanches and landslides, shifting agriculture, presence and competition with alien species and harvesting for subsistence
<i>Niviventer eha</i>	Hunting for subsistence
<i>Platacanthomys lasiurus</i>	Habitat loss and degradation due to expansion of coffee and tea plantations, agro-industry based farming activities, mortality due to pest control practices as it is considered as a pest of cardamom, pepper and jackfruit plantation and forest fires

Taxon	Threats
<i>Rattus montanus</i>	Habitat loss and degradation due to expansion of agriculture and clear-cutting of forests
<i>Rattus nitidus</i>	Habitat loss and degradation due to shifting agriculture, small-scale logging, natural disasters and hunting for local consumption
<i>Rattus norvegicus</i>	Pest control practices and presence of predators
<i>Rattus palmarum</i>	Competition from alien species
<i>Rattus ranjinae</i>	Habitat loss and natural disasters
<i>Rattus rattus</i>	Pest control practices, natural calamities like fire, rise of temperature, pathogens or parasites affecting the individuals, used in research for human disease investigations and hunted for local consumption
<i>Rattus stoicus</i>	Competition from alien species
<i>Rhizomys pruinosus</i>	Habitat loss and degradation due to shifting cultivation, bamboo extraction and accidental mortality due to hunting for local consumption
<i>Srilankamys ohiensis</i>	Habitat loss and degradation due to expansion of agriculture, clear-cutting, natural disasters like forest fire in Horton Plains, under growth clearing (in Knuckles Range), predation by domestic carnivores
<i>Tatera indica</i>	Habitat loss and degradation due to expansion of agricultural activities, agro-industry based farming activities, expansion of human settlements, stone quarrying, invasion of exotic plant species, hunting for local consumption purposes, accidental mortality due to poisoning for hunting, pest control practices, natural calamities like drought and presence of predators
<i>Vandeleuria nolthenii</i>	Habitat loss and degradation due to expansion of agricultural activities and clear-cutting of the forest
<i>Vandeleuria oleracea</i>	Habitat loss and degradation due to expansion of agriculture, human encroachment, grazing by livestock, illicit wood cutting, increase of urban areas, mining, stone quarrying, small-scale logging, lopping, accidental mortality due to drowning, poisoning, hunting for local consumption, presence of wild and domestic predators
Sciuridae	
<i>Belomys pearsonii</i>	Shifting (jhum) cultivation, forest fires, monoculture plantations, and hunting
<i>Biswamoyopterus biswasi</i>	Natural calamities and also possibly harvest by locals
<i>Callosciurus erythraeus</i>	Shifting cultivation, selective logging, forest fires and hunting
<i>Callosciurus pygerythrus</i>	Shifting agriculture, small-scale and selective logging, clear cutting, establishment of human settlements, forest fires and hunting
<i>Dremomys lokriah</i>	Human induced habitat degradation due to small-scale logging, selective logging, clear-cutting, expansion of human settlement, road construction activities, harvesting for local consumption and natural predators
<i>Dremomys pernyi</i>	Habitat degradation due to shifting (jhum) cultivation practices and hunting and poaching for local consumption

Taxon	Threats
<i>Dremomys rufigenis</i>	Natural disasters as landslides
<i>Eoglaucmys fimbriatus</i>	Small-scale logging, selective logging, wood collection, natural predators and civil unrest
<i>Eupetaurus cinereus</i>	Habitat loss due to expansion of agriculture, small wood plantations, small scale logging, infrastructure development, human settlements, harvesting for local consumption and natural predators
<i>Funambulus layardi</i>	Habitat loss and degradation due to large wood plantations, selective logging and forest fires
<i>Funambulus palmarum</i>	Habitat loss and degradation due to agro-industry farming, small-scale logging, human encroachments, invasive alien species, pest control practices and hunted for local consumption purposes
<i>Funambulus pennantii</i>	Habitat loss and degradation due to small-scale logging, expansion of human settlements and caught and kept as pets
<i>Funambulus sublineatus</i>	Habitat loss and degradation due to selective logging, collection of non-wood vegetation and forest fires
<i>Funambulus tristriatus</i>	Habitat loss and degradation due to agro-industry farming, large wood plantations, small-scale logging, increase in human settlements, pest control by means of pesticides and poisoning
<i>Hylopetes alboniger</i>	Habitat loss due to shifting (Jhum) agriculture, small wood plantations, mining activities, infrastructure development, establishment of human settlements, construction of dams, forest fires and civil unrest
<i>Hylopetes baberi</i>	Habitats threatened due to anthropogenic activities
<i>Marmota caudata</i>	Habitat under threat due to overgrazing, conversion of lands for agriculture, civil unrest and landslides
<i>Marmota himalayana</i>	Hunting for food and medicinal value, entanglement in nets, natural disasters as landslides, natural and domestic predators and civil unrest
<i>Petaurista caniceps</i>	Habitat loss and degradation due to selective logging, infrastructure development, large wood plantations, human encroachments, forest fires, war and civil unrest
<i>Petaurista magnificus</i>	Habitat loss and degradation due to non-timber plantations, small-scale logging, human encroachments and forest fires
<i>Petaurista nobilis</i>	Habitat loss and degradation due to non-farm activities, logging, mining, human settlements, construction of dams and hunting for local consumption
<i>Petaurista petaurista</i>	Habitat loss and degradation due to shifting agriculture, large wood plantations, mining, small-scale logging, selective logging, clear-cutting, infrastructure development, increase of human settlements, construction of dams, erecting power lines, forest fires, presence of predators and hunting for pet trade and fur trade
<i>Petaurista philippensis</i>	Habitat loss and degradation due to non-farm activities, tree felling, shifting cultivation, increase in human settlements, forest fires, accidental mortality due to collision with vehicles, hunted for local consumption and medicinal purposes

Taxon	Threats
<i>Petinomys fuscocapillus</i>	Habitat loss due to expansion of agriculture, small wood plantations, small scale logging, infrastructure development, human settlements, harvesting for local consumption and natural predators
<i>Ratufa bicolor</i>	Human induced habitat degradation due to shifting (jhum) agriculture practices, small-scale logging, clear-cutting, forest fires, expansion of human settlements, harvesting for local consumption, natural disasters as flooding, stoning by locals and predators and competitors
<i>Ratufa indica</i>	Habitat degradation due to expansion of agro-industry based large scale and small scale plantation, monoculture plantation, clear felling, selective logging, construction of dams and hunting for local consumption
<i>Ratufa macroura</i>	Habitat loss and degradation due to agro-industry farming, small-scale logging, selective logging, increase in human settlements, forest fire, interspecific competition, competition from alien species, hunting for local consumption purposes and presence of domestic predators
<i>Tamiops maccllellandi</i>	Habitat loss due to forest fire
Scandentia	
Tupaiaidae	
<i>Anathana ellioti</i>	Wood plantations, small-scale logging, clear-cutting, human settlement, road transport, mortality due to road kills, dams and local harvest for medicinal use
<i>Tupaia belangeri</i>	Habitat loss due to invasive alien species, local harvesting and flooding
<i>Tupaia nicobarica</i>	Habitat loss due to agriculture, change in land use pattern, human settlements and introduced domestic mammals
Soricomorpha	
Soricidae	
<i>Chimmarogale himalayica</i>	Habitat loss due to agriculture expansion, selective logging, harvesting for medical use, poisoning, pest control activities, decline in prey species and natural disasters as land slides
<i>Crocidura andamanensis</i>	Habitat loss due to anthropogenic activities and natural disasters
<i>Crocidura attenuata</i>	Habitat loss due to non-wood forest resource collection, invasive alien species, flooding and waterlogging, fires, competitors and predators
<i>Crocidura gueldenstaedtii</i>	Habitat fragmentation and loss
<i>Crocidura hispida</i>	Habitat loss due to anthropogenic activities and natural disasters
<i>Crocidura horsfieldi</i>	Habitat loss due to anthropogenic activities and forest fires
<i>Crocidura jenkinsi</i>	Habitat loss due to selective logging, anthropogenic activities and natural disasters
<i>Crocidura miya</i>	Deforestation, clear felling and forest fires
<i>Crocidura nicobarica</i>	Habitat loss due to selective logging, anthropogenic activities and natural disasters
<i>Feroculus feroculus</i>	Habitat loss due to anthropogenic activities and forest fires

Taxon	Threats
<i>Nectogale elegans</i>	Habitat loss due to selective logging and natural disasters as landslides
<i>Solisorex pearsonii</i>	Habitat loss due to selective logging and undergrowth clearance for cardamom plantations, and forest fires
<i>Sorex planiceps</i>	Natural predators and restricted range distribution
<i>Soriculus nigriscens</i>	Habitat loss due to agricultural expansion and human settlements
<i>Suncus dayi</i>	Habitat loss due to conversion of grassland sholas for eucalyptus and tea plantations and its restricted distribution
<i>Suncus etruscus</i>	Habitat loss due to encroachment for agriculture, small-scale logging, clear cutting, forest fires, poisoning, pest control activities, cattle grazing, natural predators and diseases
<i>Suncus fellowesgordoni</i>	Habitat loss due to expansion of tea plantations, forest fires and pest control activities
<i>Suncus montanus</i>	Habitat loss due to agricultural expansion, pesticide use and forest fires
<i>Suncus murinus</i>	Habitat loss due to agricultural expansion, pesticide use, forest fires and natural predators
<i>Suncus stoliczkanus</i>	Habitat loss due to agricultural expansion, pesticide use and natural predators
<i>Suncus zeylanicus</i>	Habitat loss due to agricultural expansion and illegal timber extraction
Talpidae	
<i>Euroscaptor micrura</i>	Habitat loss due to expansion of agricultural lands and flooding of the Terai and Duar regions where this taxon occurs
<i>Parascaptor leucura</i>	Habitat loss due to clear-cutting, woodland clearing, human settlements, expansion of agricultural lands and increased use of agrochemicals and pesticides

Data quality and uncertainty

Since most NVSMs in South Asia are not well-studied in terms of distribution, assessments were based mostly on literature and to some extent on recent field observations. For only a few NVSM species such as squirrels, assessments could be based on general field studies done by several biologists over the years. However, for most NVSM taxa, other forms of data quality were utilized to assess status, and these included indirect information. This was especially true in the case of museum studies to ascertain taxonomy and distribution ranges, from literature for distribution and from inferences with respect to population trends. The overall assessment strategy involved bits of different degrees of data-quality, most of it reliable.

Only one species was assessed with information from census and monitoring studies, while almost all species of NVSMs were assessed using either museum or literature information, or both. General field studies and informal field sightings although indicated equally, the former was used for the larger and more widespread of the NVSMs, while the latter was more common for the lesser-known, smaller and enigmatic animals. No assessment was based only on hearsay or popular beliefs for any species, although for two species this level of data quality was considered along with other levels. Indirect information was effective in some instances such as the subspecies of *Ratufa indica dealbata*, where the taxon was thought definitely to have gone extinct: some recent reports from a few biologists led to the possible conclusion that this species may well persist in the Dangs of Gujarat. This was concluded from indirect information. About 16% of the species were assessed based on indirect information, although in most cases this was not the only available quality of data, but was used in addition to other data such as from literature or museum studies, or general field studies and/or informal field sightings.

The groups reached a consensus in most cases, but in instances where the members of a group had a disagreement, information was clarified in the draft report after the workshop. The strategy at the workshop was to utilize all available information in deriving a status for the taxa, but also to provide additional information following the workshop during the review of the draft report. It was also decided at the workshop that the assessments would be made conforming to the IUCN Red List Criteria at the global and national/regional levels based on new information available, or on a thorough re-examination of all the information provided.

Assessments

Status assessments were made using the best available information from literature and expertise available at the workshop. Since most of the NVSM experts of the region were present, the information may be considered the best compiled up to now. A quick comparison of the assessments done previously (2004 IUCN Red List of Threatened Species (Hilton-Taylor, 2004)) with those at the workshop indicates the differences in information availability. At this workshop, subspecies level assessments were not considered as there was considerable doubt in their distributional ranges. The 2004 IUCN red list compilation is based for the most part on the 1994 Red List Criteria (Version 2.3), while the assessments at this C.A.M.P. workshop were based on the 2001 IUCN Red List Criteria (Version 3.1) (See Table 4).

The criteria used for assessing threatened NVSM are population reduction (A), restricted distribution and extreme fluctuation (B) and restricted population (D2). For most NVSMs, it was not possible to derive a category based on population reduction; this was due to lack of consistent studies such as census and monitoring and general field studies. Only seven (5 endemic and 2 non-endemic) of the 185 taxa were categorised as threatened based on known, estimated, inferred or predicted population declines. These included the larger squirrels and one species of pangolin. In these cases, it was possible to infer population decline based on loss of habitat over the years. A lower estimate in each case was used to determine population decline although habitat declines have taken place at a higher rate.

Restricted distribution criteria was more often used in determining threat category of NVSMs in South Asia based on the current knowledge of their distribution, estimated range and area of occupancy, possible and observed threats either to the habitat, habitat quality or populations, and inferred threats from the combination of these factors based on direct or indirect information on habitats across the taxon's distribution range. A total of 48 taxa (32 endemics and 16 non-endemics) were assessed based on this criteria, contributing to 87% of the threatened NVSM species in South Asia. In all, 31 species were assessed to have restricted range and area (17 endemics and 14 non-endemics), while nine were restricted only in range (7 endemics and 2 non-endemics) and 18 were restricted only in area (7 endemics and 11 non-endemics). However, of the 55 NVSM species that were assessed as having restricted distribution, all 32 endemic species were categorised as threatened, while only 13 non-endemic species were categorised threatened and 14 species were downgraded by one category.

Six (2 endemic and 4 non-endemic) NVSM taxa were known to be restricted to very small areas, typically less than 100km², or known to occur in less than or equal to five locations, which are inferred to be relatively safe from threats. Yet due to the highly restricted area of occupancy or few locations, the taxa were assessed as Vulnerable based on precautionary principle. Until the end of 2004, a few other species of NVSMs present on Andaman and Nicobar Islands were classified Vulnerable based on this criterion. However, the effects of the devastating tsunami that occurred in December 2004 has changed the status of several of these island species to higher levels of threat based on criterion B. This is a typical example of the wisdom of applying precautionary principle in the IUCN Red List process.

Assessments at the population level

All Indian and Sri Lankan NVSM taxa with the same taxonomic classification were assessed separately for the two countries. For example, *Ratufa macroura* that occurs in the two countries was assigned separate status for the two countries apart from one global assessment. Similarly, the recently discovered *Feroculus feroculus* from India (Long-clawed Shrew until recently thought to be endemic to Sri Lanka) was assessed separately for the two countries until further taxonomic work establishes its correct taxonomic identity. Taxa common to India and Sri Lanka have been considered as separate populations and the assessments have therefore been assigned at the population level.

Categorising taxa at the population level is important from a conservation point of view. Irrespective of whether a taxon is described formally or not, the value of identifying populations that are restricted and unique helps in recognising critical populations, genetic makeup and ecosystems: *Ratufa indica* is a good example. Although there is considerable debate as to the number of subspecies of *Ratufa indica*, there is a clear demarcation of populations north and south of the Palghat gap in the Western Ghats, which is easily distinguishable by the colouration.

Similarly, all Andaman and Nicobar NVSM species were assessed separately, although they belong to India politically. The national assessments for species occurring on the mainland and in Andaman and Nicobar Islands were assessed at the national level and at the mainland and island levels to distinguish the island population until further taxonomic work can be undertaken.

Endemism

Sixty-two species (33.5%) of South Asian NVSMs are endemic to the region; 26 to India, one to Nepal, one to Pakistan and 10 to Sri Lanka. Twenty-four species have a wider distribution, but are still restricted in their distribution to two or more countries within South Asia. A sizeable proportion of the endemic species are threatened due to their restricted distribution, or in the case of the larger squirrels, due to population decline. A few species were categorized as threatened based on the precautionary D2 category.

Restricted distribution

Table 8 shows a list of 97 species of NVSMs that occur in either one location or less than 10 locations in South Asia. Of this 35 are endemic to the region (including 18 Indian endemics, 8 Sri Lankan endemics, 1 each endemic to Nepal and Pakistan), while the others are non-endemic, yet restricted within the region. This is a good indicator of (a) the degree of restriction in the distribution of several taxa, (b) the lack of studies to indicate a wider distribution, and/or (c) an indication of the degree of threat faced by several taxa due to small distributional ranges. Whichever of the above choices, these taxa could be under threat either due to the intrinsic factors of a restricted range or due to lack of knowledge in their distribution and processes that could affect their existence in certain areas, if not throughout their range. Restricted species, especially those not categorized as pests, face severe threats if they happen to share the same habitats as pest species and are generally targeted under the same action of pest control by several private and public agencies. *Rattus ranjiniae* and *Suncus dayi* are typical examples of highly restricted species facing additional threats due to pest control measures.

Table 8: List of NVSM species that are known from a few locations in South Asia

Taxon	Number of locations			Endemic to
	1	5 / < 5	10 / < 10	
Erinaceomorpha				
Erinaceidae				
<i>Hemiechinus auritus</i> (Gmelin, 1770)	-	-	+	-
<i>Hemiechinus nudiventris</i> (Horsfield, 1851)	-	+	-	India
Lagomorpha				
Leporidae				
<i>Caprolagus hispidus</i> (Pearson, 1839)	-	-	+	South Asia
<i>Lepus oiostolus</i> Hodgson, 1840	-	-	+	-
<i>Lepus tolai</i> Pallas, 1778	+	-	-	-
Ochotonidae				
<i>Ochotona curzoniae</i> (Hodgson, 1858)	-	+	-	-
<i>Ochotona himalayana</i> Feng, 1973	+	-	-	-
<i>Ochotona ladacensis</i> (Gunther, 1875)	-	-	+	-
<i>Ochotona rufescens</i> (Gray, 1842)	-	-	+	-
<i>Ochotona thibetana</i> (Milne-Edwards, 1871)	-	+	-	-
Rodentia				
Calomyscidae				
<i>Calomyscus hotsoni</i> Thomas, 1920	+	-	-	Pakistan
Cricetidae				
<i>Cricetulus alticola</i> Thomas, 1917	-	+	-	-
Dipodidae				
<i>Allactaga elater</i> (Lichtenstein, 1828)	-	-	+	-
<i>Allactaga hotsoni</i> Thomas, 1920	-	-	+	-
<i>Jaculus blanfordi</i> (Murray, 1884)	-	+	-	-
<i>Salpingotus michaelis</i> Fitzgibbon, 1966	-	+	-	-
Gliridae				
<i>Dryomys nitedula</i> (Pallas, 1778)	-	-	+	-
Hystricidae				
<i>Atherurus macrourus</i> (Linnaeus, 1758)	-	+	-	-
Muridae				
<i>Acomys dimidiatus</i> (Cretzschmar, 1826)	-	+	-	-
<i>Alticola blanfordi</i> (Scully, 1880)	-	-	+	India
<i>Alticola montosa</i> (True, 1894)	-	-	+	South Asia
<i>Alticola roylei</i> (Gray, 1842)	-	+	-	India
<i>Alticola stoliczkanus</i> (Blanford, 1875)	-	+	-	-
<i>Alticola stracheyi</i> (Thomas, 1880)	-	-	+	-
<i>Apodemus draco</i> (Barrett-Hamilton, 1900)	-	+	-	-
<i>Apodemus gurkha</i> Thomas, 1924	-	+	-	Nepal
<i>Apodemus orestes</i> (Thomas, 1911)	+	-	-	-
<i>Berylmys bowersi</i> (Anderson, 1879)	-	-	+	-
<i>Berylmys mackenziei</i> (Thomas, 1916)	-	-	+	-
<i>Berylmys manipulus</i> (Thomas, 1916)	-	-	+	-
<i>Chiropodomys gliroides</i> (Blyth, 1856)	-	+	-	-
<i>Cremnomys elvira</i> (Ellerman, 1947)	+	-	-	India

Taxon	Number of locations			Endemic to
	1	5 / < 5	10 / < 10	
<i>Dacnomys millardi</i> Thomas, 1916	-	+	-	-
<i>Diomys crumpi</i> Thomas, 1917	-	+	-	-
<i>Ellobius fuscocapillus</i> (Blyth, 1842)	-	+	-	-
<i>Eothenomys melanogaster</i> (Milne-Edwards, 1871)	-	+	-	-
<i>Gerbillus cheesmani</i> Thomas, 1919	-	+	-	-
<i>Hadromys humei</i> (Thomas, 1886)	-	+	-	-
<i>Hyperacrius wynnei</i> (Blanford, 1881)	-	-	+	South Asia
<i>Leopoldamys edwardsi</i> (Thomas, 1882)	-	+	-	-
<i>Leopoldamys sabanus</i> (Thomas, 1887)	+	-	-	-
<i>Meriones lybicus</i> Lichtenstein, 1823	-	-	+	-
<i>Meriones persicus</i> (Blanford, 1875)	-	-	+	-
<i>Micromys minutus</i> (Pallas, 1771)	-	+	-	-
<i>Microtus juldaschi</i> (Severtzov, 1879)	+	-	-	-
<i>Microtus leucurus</i> (Blyth, 1863)	-	+	-	-
<i>Millardia kondana</i> Mishra & Dhanda, 1975	+	-	-	India
<i>Mus famulus</i> Bonhote, 1898	-	+	-	India
<i>Mus fernandoni</i> (Phillips, 1932)	-	+	-	Sri Lanka
<i>Niviventer brahma</i> (Thomas, 1914)	-	+	-	-
<i>Niviventer eha</i> (Wroughton, 1916)	-	-	+	-
<i>Niviventer langbianis</i> (Robinson & Kloss, 1922)	+	-	-	-
<i>Rattus burrus</i> (Miller, 1902)	-	+	-	India
<i>Rattus montanus</i> Phillips, 1932	-	+	-	Sri Lanka
<i>Rattus palmarum</i> (Zelevor, 1869)	+	-	-	India
<i>Rattus ranjinae</i> Agrawal & Ghosh, 1969	-	+	-	India
<i>Rattus stoicus</i> (Miller, 1902)	-	+	-	India
<i>Rattus vicerex</i> (Bonhote, 1903)	-	-	+	South Asia
<i>Rhizomys pruinosus</i> Blyth, 1851	-	-	+	-
<i>Rhombomys opimus</i> (Lichtenstein, 1823)	-	+	-	-
<i>Srilankamys ohiensis</i> (Phillips, 1929)	-	-	+	Sri Lanka
<i>Vandeleuria nolthenii</i> (Phillips, 1929)	-	+	-	Sri Lanka
Sciuridae				
<i>Belomys pearsonii</i> (Gray, 1842)	-	-	+	-
<i>Biswamoyopterus biswasi</i> Saha, 1981	-	+	-	India
<i>Dremomys pernyi</i> (Milne-Edwards, 1867)	-	+	-	-
<i>Dremomys rufigenis</i> (Blanford, 1878)	-	+	-	-
<i>Eupetaurus cinereus</i> Thomas, 1888	-	-	+	-
<i>Hylopetes alboniger</i> (Hodgson, 1836)	-	-	+	-
<i>Hylopetes baberi</i> (Blyth, 1847)	-	+	-	-
<i>Petaurista magnificus</i> (Hodgson, 1836)	-	-	+	-
<i>Petaurista nobilis</i> Gray, 1842	-	-	+	South Asia
Scandentia				
Tupaiaidae				
<i>Tupaia nicobarica</i> (Zelevor, 1869)	-	-	+	India
Soricomorpha				
Soricidae				
<i>Chimmarogale himalayica</i> (Gray, 1842)	-	+	-	-
<i>Crocidura andamanensis</i> Miller, 1902	-	+	-	India
<i>Crocidura gueldenstaedtii</i> (Pallas, 1811)	-	-	+	-
<i>Crocidura hispida</i> Thomas, 1913	+	-	-	India
<i>Crocidura jenkinsi</i> Chakraborty, 1978	-	+	-	India
<i>Crocidura leucodon</i> (Hermann, 1780)	+	-	-	-

Taxon	Number of locations			Endemic to
	1	5 / < 5	10 / < 10	
<i>Crocidura miya</i> Phillips, 1929	-	+	-	Sri Lanka
<i>Crocidura nicobarica</i> Miller, 1902	+	-	-	India
<i>Crocidura pergrisea</i> Miller, 1913	+	-	-	India
<i>Crocidura zarudnyi</i> Ognev, 1928	-	+	-	-
<i>Feroculus feroculus</i> (Kelaart, 1850)	-	-	+	South Asia
<i>Nectogale elegans</i> Milne-Edwards, 1870	-	+	-	-
<i>Solisorex pearsonii</i> Thomas, 1924	-	-	+	Sri Lanka
<i>Sorex bedfordiae</i> Thomas, 1911	-	+	-	-
<i>Sorex excelsus</i> Allen, 1923	+	-	-	-
<i>Sorex minutus</i> Linnaeus, 1766	-	+	-	-
<i>Sorex planiceps</i> Miller, 1911	-	-	+	South Asia
<i>Soriculus caudatus</i> (Horsfield, 1851)	-	-	+	-
<i>Soriculus leucops</i> (Hodgson, 1855)	-	-	+	-
<i>Soriculus macrurus</i> Blanford, 1888	+	-	-	-
<i>Soriculus nigriscens</i> (Gray, 1842)	-	-	+	-
<i>Suncus dayi</i> (Dobson, 1888)	-	+	-	India
<i>Suncus fellowesgordoni</i> Phillips, 1932	-	-	+	Sri Lanka
<i>Suncus zeylanicus</i> Phillips, 1928	-	+	-	Sri Lanka
Talpidae				
<i>Parascaptor leucura</i> (Blyth, 1850)	-	-	+	-

Table 8 indicates the following number of species having the known distribution of less than 10 locations in South Asia: Erinaceidae - 2 species, Tupaiidae- 1, Leporidae - 3 (1 in only 1 location), Ochotonidae - 5 (1 in only 1 location), Calomyscidae - 1 (only 1 location), Cricetidae - 1, Dipodidae - 4, Gliridae - 1, Hystricidae - 1, Muridae - 44 (7 in only 1 location), Sciuridae - 9 species, Soricidae - 24 (6 in a single location), and Talpidae - 1. In all, 16 species are found only in a single location, 45 species in five or less than five locations and 36 species in 10 or less than 10 locations in South Asia!

Country-wise status of NVSMs in South Asia

In the process of assessing the status of NVSMs in South Asia, national assessments in six of the seven countries of South Asia were carried out. According to the information available until now, the number of NVSM species in each country is as follows: Bangladesh: 28 (0 endemics; 28 non-endemics; 15% of the total South Asian NVSM species representation); Bhutan: 32 (0 endemics; 32 non-endemics; 17% representation); India: 150 (26 endemics; 124 non-endemics; 81% representation); Nepal: 70 (1 endemic; 69 non-endemics; 38% representation); Pakistan: 68 (1 endemic; 67 non-endemics; 37% representation); Sri Lanka: 35 (10 endemics; 25 non-endemics; 19% representation). Although Bhutan and Nepal are smaller countries compared to Bangladesh and Pakistan, respectively, the higher numbers of NVSM species diversity is a reflection of more studies conducted in those two countries. Sri Lanka has fewer NVSMs compared to other countries in the region, compared to its land area and extensive studies, but exhibits more unique diversity than other smaller countries of South Asia. India with the largest land mass and varied ecosystems, possesses the most diversity and uniqueness in the region for NVSM.

Table 9 summarizes the status of NVSM species in each country in South Asia, while Tables 10-15 provide a list of all NVSMs in each country along with the national status as derived using the Regional IUCN Red List Categories and Criteria (Version 3.0; IUCN, 2003). Country endemics are assessed globally using the Global IUCN Red List Categories and Criteria (Version 3.1; IUCN 2001).

Table 9: Summary of national assessments of NVSMs in South Asia

	CR	EN	VU	NT	LC	DD	NE
Bangladesh							
Endemic = 0	-	-	-	-	-	-	-
Nonendemic = 28	-	1	2	9	8	8	-
Bhutan							
Endemic = 0	-	-	-	-	-	-	-
Nonendemic = 32	0	2	4	3	9	13	1
India							
Endemic = 26	6	7	5	3	3	2	-
Nonendemic = 124	-	12	16	21	64	8	3
Nepal							
Endemic = 1	-	1	-	-	-	-	-
Nonendemic = 69	1	4	9	9	32	13	1
Pakistan							
Endemic = 1	1	-	-	-	-	-	-
Nonendemic = 67	1	2	7	9	41	4	3
Sri Lanka							
Endemic = 10	-	8	2	-	-	-	-
Nonendemic = 25	-	6	2	1	15	1	-

Table 10: National status of NVSM species occurring in Bangladesh (derived using IUCN Ver. 3.0)

Scientific name	Status	Criteria
Bangladesh Non-endemics (National status derived using IUCN Version 3.0)		
Lagomorpha		
Leporidae		
<i>Caprolagus hispidus</i> (Pearson, 1839)	Data Deficient	
<i>Lepus nigricollis</i> Cuvier, 1823	Least Concern	
Pholidota		
Manidae		
<i>Manis crassicaudata</i> (Gray, 1827)	Vulnerable	A2c+3c+4c
Rodentia		
Hystricidae		
<i>Atherurus macrourus</i> (Linnaeus, 1758)	Data Deficient	
<i>Hystrix brachyura</i> Linnaeus, 1758	Endangered	B1ab(ii,iii,v)+2ab(ii,iii,v)
<i>Hystrix indica</i> (Kerr, 1792)	Least Concern	
Muridae		
<i>Bandicota bengalensis</i> (Gray & Hardwicke, 1833)	Least Concern	
<i>Bandicota indica</i> (Bechstein, 1800)	Least Concern	
<i>Cremnomys blanfordi</i> (Thomas, 1881)	Near Threatened	VU ↓ NT D2
<i>Leopoldamys sabanus</i> (Thomas, 1887)	Data Deficient	
<i>Mus booduga</i> (Gray, 1837)	Data Deficient	
<i>Mus cookii</i> Ryley, 1914	Data Deficient	
<i>Mus musculus</i> Linnaeus, 1758	Least Concern	
<i>Nesokia indica</i> (Gray & Hardwicke, 1832)	Near Threatened	VU ↓ NT D2
<i>Rattus exulans</i> (Peale, 1848)	Data Deficient	
<i>Rattus nitidus</i> (Hodgson, 1845)	Data Deficient	
<i>Rattus rattus</i> (Linnaeus, 1758)	Least Concern	
<i>Rattus turkestanicus</i> (Satunin, 1903)	Data Deficient	
<i>Vandeleuria oleracea</i> (Bennett, 1832)	Least Concern	
Sciuridae		
<i>Callosciurus erythraeus</i> (Pallas, 1799)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Callosciurus pygerythrus</i> (l. Geoffroy Saint-Hilaire, 1831)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Dremomys lokriah</i> (Hodgson, 1836)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Funambulus pennantii</i> Wroughton, 1905	Near Threatened	
<i>Petaurista petaurista</i> (Pallas, 1766)	Near Threatened	VU ↓ NT B1ab(ii,iii)+2ab(ii,iii)
<i>Ratufa bicolor</i> (Sparrman, 1778)	Near Threatened	VU ↓ NT B1ab(ii,iii)+2ab(ii,iii)
Scandentia		
Tupaiaidae		
<i>Tupaia belangeri</i> (Wagner, 1841)	Near Threatened	
Soricomorpha		
Soricidae		
<i>Suncus murinus</i> (Linnaeus, 1766)	Least Concern	
Talpidae		
<i>Parascaptor leucura</i> (Blyth, 1850)	Vulnerable	EN ↓ VU B1ab(ii,iii)+2ab(ii,iii)

Table 11: National status of NVSM species occurring in Bhutan (derived using IUCN Ver. 3.0)

Scientific name	Status	Criteria
Bhutan Non-endemics (National status derived using IUCN Version 3.0)		
Lagomorpha		
Leporidae		
<i>Lepus nigricollis</i> Cuvier, 1823	Data Deficient	
Ochotonidae		
<i>Ochotona forresti</i> Thomas, 1923	Data Deficient	
<i>Ochotona macrotis</i> (Gunther, 1875)	Data Deficient	
<i>Ochotona thibetana</i> (Milne-Edwards, 1871)	Data Deficient	
Rodentia		
Muridae		
<i>Alticola stoliczkanus</i> (Blanford, 1875)	Data Deficient	
<i>Microtus sikimensis</i> (Hodgson, 1849)	Vulnerable	EN ↓ VU B1ab(iii)+2ab(iii)
<i>Mus cookii</i> Ryley, 1914	Data Deficient	
<i>Mus musculus</i> Linnaeus, 1758	Least Concern	
<i>Mus pahari</i> Thomas, 1916	Least Concern	
<i>Niviventer niviventer</i> (Hodgson, 1836)	Least Concern	
<i>Rattus nitidus</i> (Hodgson, 1845)	Least Concern	
<i>Rattus rattus</i> (Linnaeus, 1758)	Least Concern	
<i>Rattus tanezumii</i> (Temminck, 1844)	Not Evaluated	
<i>Rattus turkestanicus</i> (Satunin, 1903)	Data Deficient	
<i>Vandeleuria oleracea</i> (Bennett, 1832)	Data Deficient	
Sciuridae		
<i>Belomys pearsonii</i> (Gray, 1842)	Data Deficient	
<i>Callosciurus erythraeus</i> (Pallas, 1799)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Callosciurus pygerythrus</i> (l. Geoffroy Saint-Hilaire, 1831)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Dremomys lokriah</i> (Hodgson, 1836)	Least Concern	
<i>Hylomys alboniger</i> (Hodgson, 1836)	Data Deficient	
<i>Petaurista caniceps</i> (Gray, 1842)	Vulnerable	EN ↓ VU B2ab(ii,iii)
<i>Petaurista magnificus</i> (Hodgson, 1836)	Endangered	A2c+3c+4c; B1ab(ii,iii)
<i>Petaurista nobilis</i> Gray, 1842	Endangered	A2c+3c+4c; B2ab(ii,iii)
<i>Ratufa bicolor</i> (Sparrrman, 1778)	Least Concern	
<i>Tamiops macclellandi</i> (Horsfield, 1840)	Least Concern	
Scandentia		
Tupaiaidae		
<i>Tupaia belangeri</i> (Wagner, 1841)	Vulnerable	EN ↓ VU B2ab(ii,iii)
Soricomorpha		
Soricidae		
<i>Anourosorex squamipes</i> Milne-Edwards, 1872	Least Concern	
<i>Crocidura attenuate</i> Milne-Edwards, 1872	Data Deficient	
<i>Soriculus nigricens</i> (Gray, 1842)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Suncus etruscus</i> (Savi, 1822)	Data Deficient	
<i>Suncus murinus</i> (Linnaeus, 1766)	Data Deficient	
Talpidae		
<i>Euroscaptor micrura</i> (Hodgson, 1841)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)

Table 12: Global and National status of NVSM species occurring in India (derived using IUCN Ver. 3.1 & 3.0)

Scientific name	Status	Criteria
Indian Endemics (Global status derived using IUCN Version 3.1)		
Erinaceomorpha		
Erinaceidae		
<i>Hemiechinus nudiventris</i> (Horsfield, 1851)	Near Threatened	
Rodentia		
Muridae		
<i>Alticola albicauda</i> (True, 1894)	Data Deficient	
<i>Alticola blanfordi</i> (Scully, 1880)	Vulnerable	B2ab(iii)
<i>Alticola roylei</i> (Gray, 1842)	Endangered	B2ab(iii)
<i>Bandicota maxima</i> Pradhan <i>et al.</i> , 1993	Least Concern	
<i>Cremnomys cutchicus</i> Wroughton, 1912	Least Concern	
<i>Cremnomys elvira</i> (Ellerman, 1947)	Critically Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Millardia kondana</i> Mishra & Dhanda, 1975	Critically Endangered	B1ab(iii)+2ab(iii)
<i>Mus famulus</i> Bonhote, 1898	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Mus platythrix</i> Bennet, 1832	Least Concern	
<i>Rattus burrus</i> (Miller, 1902)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Rattus palmarum</i> (Zelevor, 1869)	Critically Endangered	B1ab(iii)
<i>Rattus ranjinae</i> Agrawal & Ghosh, 1969	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Rattus stoicus</i> (Miller, 1902)	Vulnerable	D2
Platocanthomyidae		
<i>Platocanthomys lasiurus</i> Blyth, 1859	Vulnerable	B2ab(ii,iii)
Sciuridae		
<i>Biswamoyopterus biswasi</i> Saha, 1981	Critically Endangered	B1ab(iii); D
<i>Funambulus tristriatus</i> (Waterhouse, 1837)	Near Threatened	
<i>Ratufa indica</i> (Erxleben, 1777)	Vulnerable	A2c+3c+4c
Scandentia		
Tupaiaidae		
<i>Anathana ellioti</i> (Waterhouse, 1850)	Near Threatened	
<i>Tupaia nicobarica</i> (Zelevor, 1869)	Endangered	B1ab(iii)+2ab(iii)
Soricomorpha		
Soricidae		
<i>Crocidura andamanensis</i> Miller, 1902	Critically Endangered	B1ab(iii)
<i>Crocidura hispida</i> Thomas, 1913	Vulnerable	D2
<i>Crocidura jenkinsi</i> Chakraborty, 1978	Critically Endangered	B1ab(iii)
<i>Crocidura nicobarica</i> Miller, 1902	Endangered	B1ab(iii)+2ab(iii)
<i>Crocidura pergrisea</i> Miller, 1913	Data Deficient	
<i>Suncus dayi</i> (Dobson, 1888)	Endangered	B1ab(ii,iii)+2ab(ii,iii)

Scientific name	Status	Criteria
Indian Non-endemics (National status derived using IUCN Version 3.0)		
Erinaceomorpha		
Erinaceidae		
<i>Hemiechinus collaris</i> (Gray, 1830)	Least Concern	
<i>Hemiechinus micropus</i> (Blyth, 1846)	Least Concern	
Lagomorpha		
Leporidae		
<i>Caprolagus hispidus</i> (Pearson, 1839)	Endangered	B2ab(ii,iii,iv)
<i>Lepus capensis</i> Linnaeus, 1758	Least Concern	
<i>Lepus nigricollis</i> Cuvier, 1823	Least Concern	
<i>Lepus oiostolus</i> Hodgson, 1840	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Lepus tolai</i> Pallas, 1778	Data Deficient	
Ochotonidae		
<i>Ochotona curzoniae</i> (Hodgson, 1858)	Data Deficient	
<i>Ochotona forresti</i> Thomas, 1923	Data Deficient	
<i>Ochotona ladacensis</i> (Gunther, 1875)	Least Concern	
<i>Ochotona macrotis</i> (Gunther, 1875)	Least Concern	
<i>Ochotona nubrica</i> Thomas, 1922	Data Deficient	
<i>Ochotona roylei</i> (Ogilby, 1839)	Least Concern	
<i>Ochotona thibetana</i> (Milne-Edwards, 1871)	Vulnerable	EN ↓ VU B2ab(iii)
Pholidota		
Manidae		
<i>Manis crassicaudata</i> (Gray, 1827)	Vulnerable	A2c+3c+4c
<i>Manis pentadactyla</i> Linnaeus, 1758	Endangered	B2ab(ii,iii)
Rodentia		
Cricetidae		
<i>Cricetulus alticola</i> Thomas, 1917	Vulnerable	EN ↓ VU B1ab(ii)+2ab(iii)
<i>Cricetulus migratorius</i> (Pallas, 1773)	Least Concern	
Dipodidae		
<i>Sicista concolor</i> (Buchner, 1892)	Near Threatened	
Hystriidae		
<i>Atherurus macrourus</i> (Linnaeus, 1758)	Near Threatened	
<i>Hystrix brachyura</i> Linnaeus, 1758	Near Threatened	
<i>Hystrix indica</i> (Kerr, 1792)	Least Concern	
Muridae		
<i>Alticola argentatus</i> (Severtzov, 1879)	Least Concern	
<i>Alticola montosa</i> (True, 1894)	Near Threatened	
<i>Alticola stoliczkanus</i> (Blanford, 1875)	Vulnerable	EN ↓ VU B1ab(iii)+2ab(iii)
<i>Alticola stracheyi</i> (Thomas, 1880)	Least Concern	
<i>Apodemus draco</i> (Barrett-Hamilton, 1900)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Apodemus latronum</i> (Thomas, 1911)	Data Deficient	
<i>Apodemus orestes</i> (Thomas, 1911)	Near Threatened	VU ↓ NT D2
<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	Least Concern	
<i>Bandicota bengalensis</i> (Gray & Hardwicke, 1833)	Least Concern	
<i>Bandicota indica</i> (Bechstein, 1800)	Least Concern	
<i>Berylmys bowersi</i> (Anderson, 1879)	Least Concern	
<i>Berylmys mackenziei</i> (Thomas, 1916)	Least Concern	

Scientific name	Status	Criteria
<i>Berylmys manipulus</i> (Thomas, 1916)	Least Concern	
<i>Cannomys badius</i> (Hodgson, 1841)	Near Threatened	
<i>Chiropodomys gliroides</i> (Blyth, 1856)	Near Threatened	VU ↓ NT
<i>Cremnomys blanfordi</i> (Thomas, 1881)	Least Concern	B1ab(ii,iii)+2ab(ii,iii)
<i>Dacnomys millardi</i> Thomas, 1916	Near Threatened	VU ↓ NT
<i>Diomys crumpi</i> Thomas, 1917	Endangered	B1ab(iii)+2ab(iii)
<i>Eothenomys melanogaster</i> (Milne-Edwards, 1871)	Vulnerable	EN ↓ VU
<i>Gerbillus gleadowi</i> Murray, 1886	Near Threatened	
<i>Gerbillus nanus</i> Blanford, 1875	Least Concern	
<i>Golunda ellioti</i> Gray, 1837	Least Concern	
<i>Hydromys humei</i> (Thomas, 1886)	Vulnerable	EN ↓ VU
<i>Hyperacrius fertilis</i> (True, 1894)	Vulnerable	EN ↓ VU
<i>Hyperacrius wynnei</i> (Blanford, 1881)	Vulnerable	EN ↓ VU
<i>Leopoldamys edwardsi</i> (Thomas, 1882)	Near Threatened	VU ↓ NT
<i>Leopoldamys sabanus</i> (Thomas, 1887)	Data Deficient	
<i>Meriones hurrianae</i> (Jerdon, 1867)	Near Threatened	
<i>Micromys minutus</i> (Pallas, 1771)	Least Concern	
<i>Microtus leucurus</i> (Blyth, 1863)	Least Concern	
<i>Microtus sikimensis</i> (Hodgson, 1849)	Near Threatened	VU ↓ NT
<i>Millardia gleadowi</i> (Murray, 1885)	Least Concern	B1ab(iii)+2ab(iii)
<i>Millardia meltada</i> (Gray, 1837)	Least Concern	
<i>Mus booduga</i> (Gray, 1837)	Least Concern	
<i>Mus cervicolor</i> Hodgson, 1845	Least Concern	
<i>Mus cookii</i> Ryley, 1914	Least Concern	
<i>Mus musculus</i> Linnaeus, 1758	Least Concern	
<i>Mus pahari</i> Thomas, 1916	Least Concern	
<i>Mus phillipsi</i> Wroughton, 1912	Least Concern	
<i>Mus saxicola</i> Elliot, 1839	Least Concern	
<i>Nesokia indica</i> (Gray & Hardwicke, 1832)	Least Concern	
<i>Niviventer brahma</i> (Thomas, 1914)	Vulnerable	EN ↓ VU
<i>Niviventer eha</i> (Wroughton, 1916)	Least Concern	B1ab(iii)+2ab(iii)
<i>Niviventer fulvescens</i> (Gray, 1847)	Least Concern	
<i>Niviventer langbianis</i> (Robinson & Kloss, 1922)	Endangered	CR ↓ EN
<i>Niviventer niviventer</i> (Hodgson, 1836)	Least Concern	B1ab(iii)+2ab(iii)
<i>Niviventer tenaster</i> (Thomas, 1916)	Data Deficient	
<i>Rattus nitidus</i> (Hodgson, 1845)	Least Concern	
<i>Rattus norvegicus</i> (Berkenhout, 1769)	Not Evaluated	
<i>Rattus rattus</i> (Linnaeus, 1758)	Least Concern	
<i>Rattus sikkimensis</i> (Hinton, 1919)	Least Concern	
<i>Rattus tanezumi</i> (Temminck, 1844)	Not Evaluated	
<i>Rattus turkestanicus</i> (Satunin, 1903)	Least Concern	
<i>Rattus vicerex</i> (Bonhote, 1903)	Least Concern	
<i>Rhizomys pruinosus</i> Blyth, 1851	Endangered	B2ab(ii,iii)
<i>Tatera indica</i> (Hardwicke, 1807)	Least Concern	
<i>Vandeleuria oleracea</i> (Bennett, 1832)	Least Concern	
Sciuridae		
<i>Belomys pearsonii</i> (Gray, 1842)	Vulnerable	A3c+4c
<i>Callosciurus erythraeus</i> (Pallas, 1799)	Least Concern	
<i>Callosciurus pygerythrus</i> (I. Geoffroy Saint-Hilaire, 1831)	Least Concern	
<i>Dremomys lokriah</i> (Hodgson, 1836)	Least Concern	
<i>Dremomys pernyi</i> (Milne-Edwards, 1867)	Near Threatened	VU ↓ NT
<i>Dremomys rufigenis</i> (Blanford, 1878)	Vulnerable	EN ↓ VU
<i>Eoglaucomys fimbriatus</i> (Gray, 1837)	Least Concern	B2ab(iii)
<i>Eupetaurus cinereus</i> Thomas, 1888	Endangered	B1ab(iii)+2ab(iii)

Scientific name	Status	Criteria
<i>Funambulus palmarum</i> (Linnaeus, 1766)	Least Concern	
<i>Funambulus pennantii</i> Wroughton, 1905	Least Concern	
<i>Funambulus sublineatus</i> (Waterhouse, 1838)	Endangered	B2ab(ii,iii,iv)
<i>Hylopetes alboniger</i> (Hodgson, 1836)	Near Threatened	
<i>Hylopetes baberi</i> (Blyth, 1847)	Vulnerable	B1ab(iii)+2ab(iii)
<i>Marmota caudata</i> (Geoffroy, 1844)	Near Threatened	VU ↓ NT
<i>Marmota himalayana</i> (Hodgson, 1841)	Least Concern	B1ab(ii,iii)+2ab(ii,iii)
<i>Petaurista caniceps</i> (Gray, 1842)	Near Threatened	VU ↓ NT
<i>Petaurista magnificus</i> (Hodgson, 1836)	Vulnerable	B2ab(ii,iii)
<i>Petaurista nobilis</i> Gray, 1842	Endangered	A2c+3c+4c;B1ab(ii,iii)
<i>Petaurista petaurista</i> (Pallas, 1766)	Near Threatened	A2c+3c+4c
<i>Petaurista philippensis</i> (Elliot, 1839)	Near Threatened	
<i>Petinomys fuscocapillus</i> (Jerdon, 1847)	Vulnerable	B2ab(ii,iii)
<i>Ratufa bicolor</i> (Sparrman, 1778)	Least Concern	
<i>Ratufa macroura</i> (Pennant, 1769)	Endangered	D
<i>Tamiops macclellandi</i> (Horsfield, 1840)	Least Concern	
Scandentia		
Tupaiaidae		
<i>Tupaia belangeri</i> (Wagner, 1841)	Near Threatened	
Soricomorpha		
Soricidae		
<i>Anourosorex squamipes</i> Milne-Edwards, 1872	Least Concern	
<i>Chimmarogale himalayica</i> (Gray, 1842)	Least Concern	
<i>Crocidura attenuate</i> Milne-Edwards, 1872	Least Concern	
<i>Crocidura gueldenstaedtii</i> (Pallas, 1811)	Not Evaluated	
<i>Crocidura horsfieldi</i> (Tomes, 1856)	Vulnerable	D2
<i>Crocidura leucodon</i> (Hermann, 1780)	Data Deficient	
<i>Feroculus feroculus</i> (Kelaart, 1850)	Endangered	B1ab(iii)+2ab(iii)
<i>Nectogale elegans</i> Milne-Edwards, 1870	Near Threatened	VU ↓ NT
<i>Sorex minutus</i> Linnaeus, 1766	Least Concern	B1ab(iii)+2ab(iii)
<i>Sorex planiceps</i> Miller, 1911	Least Concern	
<i>Soriculus caudatus</i> (Horsfield, 1851)	Least Concern	
<i>Soriculus leucops</i> (Hodgson, 1855)	Least Concern	
<i>Soriculus macrurus</i> Blanford, 1888	Vulnerable	EN ↓ VU
<i>Soriculus nigriscens</i> (Gray, 1842)	Least Concern	B1ab(iii)+2ab(iii)
<i>Suncus etruscus</i> (Savi, 1822)	Least Concern	
<i>Suncus montanus</i> (Kelaart, 1850)	Endangered	B2ab(ii,iii)
<i>Suncus murinus</i> (Linnaeus, 1766)	Least Concern	
<i>Suncus stoliczkanus</i> (Anderson, 1877)	Least Concern	
Talpidae		
<i>Eurosaptor micrura</i> (Hodgson, 1841)	Least Concern	
<i>Parascaptor leucura</i> (Blyth, 1850)	Least Concern	

Table 13: Global and National status of NVSM species occurring in Nepal (derived using IUCN Ver. 3.1 & 3.0)

Scientific name	Status	Criteria
Nepal Endemics (Global status derived using IUCN Version 3.1)		
Rodentia		
Muridae		
<i>Apodemus gurkha</i> Thomas, 1924	Endangered	B1ab(iii)
Nepal Non-endemics (National status derived using IUCN Version 3.0)		
Lagomorpha		
Leporidae		
<i>Caprolagus hispidus</i> (Pearson, 1839)	Critically Endangered	B1ab(ii,iii,iv)+2ab(ii,iii,iv)
<i>Lepus nigricollis</i> Cuvier, 1823	Least Concern	
<i>Lepus oiostolus</i> Hodgson, 1840	Least Concern	
Ochotonidae		
<i>Ochotona curzoniae</i> (Hodgson, 1858)	Vulnerable	EN ↓ VU B2ab(iii)
<i>Ochotona himalayana</i> Feng, 1973	Near Threatened	VU ↓ NT D2
<i>Ochotona macrotis</i> (Gunther, 1875)	Vulnerable	EN ↓ VU B1ab(iii)+2ab(iii)
<i>Ochotona nubrica</i> Thomas, 1922	Data Deficient	
<i>Ochotona roylei</i> (Ogilby, 1839)	Least Concern	
Pholidota		
Manidae		
<i>Manis crassicaudata</i> (Gray, 1827)	Vulnerable	A2c+3c+4c
<i>Manis pentadactyla</i> Linnaeus, 1758	Endangered	B2ab(ii,iii)
Rodentia		
Cricetidae		
<i>Cricetulus alticola</i> Thomas, 1917	Data Deficient	
Hystriidae		
<i>Hystrix brachyura</i> Linnaeus, 1758	Near Threatened	VU ↓ NT B1ab(ii,iii,v)+2ab(ii,iii,v)
<i>Hystrix indica</i> (Kerr, 1792)	Least Concern	
Muridae		
<i>Alticola stoliczkanus</i> (Blanford, 1875)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Alticola stracheyi</i> (Thomas, 1880)	Least Concern	
<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Bandicota bengalensis</i> (Gray & Hardwicke, 1833)	Least Concern	
<i>Bandicota indica</i> (Bechstein, 1800)	Least Concern	
<i>Cannomys badius</i> (Hodgson, 1841)	Near Threatened	VU ↓ NT B1ab(ii,iii)+2ab(ii,iii)
<i>Dacnomys millardi</i> Thomas, 1916	Vulnerable	EN ↓ VU B1ab(iii)+2ab(iii)
<i>Diomys crumpi</i> Thomas, 1917	Endangered	B1ab(iii)+2ab(iii)
<i>Golunda ellioti</i> Gray, 1837	Least Concern	
<i>Microtus leucurus</i> (Blyth, 1863)	Least Concern	
<i>Microtus sikimensis</i> (Hodgson, 1849)	Least Concern	
<i>Millardia meltada</i> (Gray, 1837)	Least Concern	
<i>Mus booduga</i> (Gray, 1837)	Least Concern	
<i>Mus cervicolor</i> Hodgson, 1845	Least Concern	
<i>Mus cookii</i> Ryley, 1914	Data Deficient	
<i>Mus musculus</i> Linnaeus, 1758	Least Concern	
<i>Mus phillipsi</i> Wroughton, 1912	Data Deficient	

Scientific name	Status	Criteria
<i>Mus saxicola</i> Elliot, 1839	Data Deficient	
<i>Nesokia indica</i> (Gray & Hardwicke, 1832)	Least Concern	
<i>Niviventer eha</i> (Wroughton, 1916)	Least Concern	
<i>Niviventer fulvescens</i> (Gray, 1847)	Least Concern	
<i>Niviventer niviventer</i> (Hodgson, 1836)	Least Concern	
<i>Rattus nitidus</i> (Hodgson, 1845)	Least Concern	
<i>Rattus rattus</i> (Linnaeus, 1758)	Least Concern	
<i>Rattus sikkimensis</i> (Hinton, 1919)	Least Concern	
<i>Rattus tanezumii</i> (Temminck, 1844)	Not Evaluated	
<i>Rattus turkestanicus</i> (Satunin, 1903)	Least Concern	
<i>Tatera indica</i> (Hardwicke, 1807)	Least Concern	
<i>Vandeleuria oleracea</i> (Bennett, 1832)	Least Concern	
Sciuridae		
<i>Belomys pearsonii</i> (Gray, 1842)	Endangered	B1ab(iii)+2ab(iii)
<i>Callosciurus pygerythrus</i> (I. Geoffroy Saint-Hilaire, 1831)	Least Concern	
<i>Dremomys lokriah</i> (Hodgson, 1836)	Least Concern	
<i>Funambulus pennantii</i> Wroughton, 1905	Near Threatened	
<i>Hylopetes alboniger</i> (Hodgson, 1836)	Vulnerable	EN ↓ VU B1ab(ii,iii)+2ab(ii,iii)
<i>Marmota himalayana</i> (Hodgson, 1841)	Least Concern	
<i>Petaurista caniceps</i> (Gray, 1842)	Vulnerable	EN ↓ VU B1ab(ii,iii)
<i>Petaurista magnificus</i> (Hodgson, 1836)	Data Deficient	
<i>Petaurista nobilis</i> Gray, 1842	Endangered	A2c+3c+4c; B2ab(ii,iii)
<i>Petaurista petaurista</i> (Pallas, 1766)	Near Threatened	VU ↓ NT B1ab(ii,iii)+2ab(ii,iii)
<i>Ratufa bicolor</i> (Sparrman, 1778)	Data Deficient	
<i>Tamiops maccllellandi</i> (Horsfield, 1840)	Data Deficient	
Soricomorpha		
Soricidae		
<i>Chimmarogale himalayica</i> (Gray, 1842)	Vulnerable	EN ↓ VU B1ab(ii,iii)+2ab(ii,iii)
<i>Crocidura attenuate</i> Milne-Edwards, 1872	Vulnerable	EN ↓ VU B1ab(ii,iii)+2ab(ii,iii)
<i>Crocidura horsfieldi</i> (Tomes, 1856)	Vulnerable	D2
<i>Nectogale elegans</i> Milne-Edwards, 1870	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)
<i>Sorex bedfordiae</i> Thomas, 1911	Data Deficient	
<i>Sorex excelsus</i> Allen, 1923	Data Deficient	
<i>Sorex minutus</i> Linnaeus, 1766	Data Deficient	
<i>Soriculus caudatus</i> (Horsfield, 1851)	Least Concern	
<i>Soriculus leucops</i> (Hodgson, 1855)	Least Concern	
<i>Soriculus macrurus</i> Blanford, 1888	Data Deficient	
<i>Soriculus nigriscens</i> (Gray, 1842)	Data Deficient	
<i>Suncus etruscus</i> (Savi, 1822)	Least Concern	
<i>Suncus murinus</i> (Linnaeus, 1766)	Least Concern	
<i>Suncus stoliczkanus</i> (Anderson, 1877)	Least Concern	
Talpidae		
<i>Eurosaptor micrura</i> (Hodgson, 1841)	Near Threatened	VU ↓ NT B1ab(iii)+2ab(iii)

Table 14: Global and National status of NVSM species occurring in Pakistan (derived using IUCN Ver. 3.1 & 3.0)

Scientific name	Status	Criteria
Pakistan Endemics (Global status derived using IUCN Version 3.1)		
Rodentia		
Calomyscidae		
<i>Calomyscus hotsoni</i> Thomas, 1920	Critically Endangered	B1ab(ii,iii)
Pakistan Non-endemics (National status derived using IUCN Version 3.0)		
Erinaceomorpha		
Erinaceidae		
<i>Hemiechinus auritus</i> (Gmelin, 1770)	Least Concern	
<i>Hemiechinus collaris</i> (Gray, 1830)	Least Concern	
<i>Hemiechinus hypomelas</i> (Brandt, 1836)	Least Concern	
<i>Hemiechinus micropus</i> (Blyth, 1846)	Least Concern	
Lagomorpha		
Leporidae		
<i>Lepus capensis</i> Linnaeus, 1758	Least Concern	
<i>Lepus nigricollis</i> Cuvier, 1823	Least Concern	
Ochotonidae		
<i>Ochotona ladacensis</i> (Gunther, 1875)	Data Deficient	
<i>Ochotona macrotis</i> (Gunther, 1875)	Near Threatened	VU ↓ NT
<i>Ochotona roylei</i> (Ogilby, 1839)	Least Concern	
<i>Ochotona rufescens</i> (Gray, 1842)	Least Concern	
Pholidota		
Manidae		
<i>Manis crassicaudata</i> (Gray, 1827)	Vulnerable	A2c+3c+4c
Rodentia		
Calomyscidae		
<i>Calomyscus baluchi</i> Thomas, 1920	Least Concern	
Cricetidae		
<i>Cricetulus migratorius</i> (Pallas, 1773)	Least Concern	
Dipodidae		
<i>Allactaga elater</i> (Lichtenstein, 1828)	Least Concern	
<i>Allactaga hotsoni</i> Thomas, 1920	Least Concern	
<i>Jaculus blanfordi</i> (Murray, 1884)	Least Concern	
<i>Salpingotus michaelis</i> Fitzgibbon, 1966	Near Threatened	VU ↓ NT
<i>Sicista concolor</i> (Buchner, 1892)	Near Threatened	D2
Gliridae		
<i>Dryomys nitedula</i> (Pallas, 1778)	Vulnerable	EN ↓ VU
Hystricidae		
<i>Hystrix indica</i> (Kerr, 1792)	Least Concern	

Scientific name	Status	Criteria
Muridae		
<i>Acomys dimidiatus</i> (Cretzschmar, 1826)	Least Concern	
<i>Alticola argentatus</i> (Severtzov, 1879)	Least Concern	
<i>Alticola montosa</i> (True, 1894)	Critically Endangered	B1ab(iii)+2ab(iii)
<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	Vulnerable EN ↓ VU	B1ab(iii)+2ab(iii)
<i>Bandicota bengalensis</i> (Gray & Hardwicke, 1833)	Least Concern	
<i>Ellobius fuscocapillus</i> (Blyth, 1842)	Vulnerable EN ↓ VU	B1ab(ii,iii)+2ab(ii,iii)
<i>Gerbillus aquilus</i> Schlitter & Stezer, 1972	Data Deficient	
<i>Gerbillus cheesmani</i> Thomas, 1919	Least Concern	
<i>Gerbillus gleadowi</i> Murray, 1886	Near Threatened VU ↓ NT	B1ab(iii)+2ab(iii)
<i>Gerbillus nanus</i> Blanford, 1875	Least Concern	
<i>Golunda ellioti</i> Gray, 1837	Least Concern	
<i>Hyperacrius fertilis</i> (True, 1894)	Vulnerable EN ↓ VU	B2ab(iii)
<i>Hyperacrius wynnei</i> (Blanford, 1881)	Least Concern	
<i>Meriones crassus</i> Sundevall, 1842	Near Threatened	
<i>Meriones hurrianae</i> (Jerdon, 1867)	Near Threatened	
<i>Meriones lybicus</i> Lichtenstein, 1823	Least Concern	
<i>Meriones persicus</i> (Blanford, 1875)	Near Threatened VU ↓ NT	B2ab(ii,iii)
<i>Microtus juldaschi</i> (Severtzov, 1879)	Vulnerable EN ↓ VU	B1ab(iii)+2ab(iii)
<i>Millardia gleadowi</i> (Murray, 1885)	Least Concern	
<i>Millardia meltada</i> (Gray, 1837)	Least Concern	
<i>Mus booduga</i> (Gray, 1837)	Least Concern	
<i>Mus cervicolor</i> Hodgson, 1845	Least Concern	
<i>Mus musculus</i> Linnaeus, 1758	Least Concern	
<i>Mus saxicola</i> Elliot, 1839	Least Concern	
<i>Nesokia indica</i> (Gray & Hardwicke, 1832)	Least Concern	
<i>Niviventer fulvescens</i> (Gray, 1847)	Data Deficient	
<i>Rattus norvegicus</i> (Berkenhout, 1769)	Not Evaluated	
<i>Rattus rattus</i> (Linnaeus, 1758)	Least Concern	
<i>Rattus tanezumi</i> (Temminck, 1844)	Not Evaluated	
<i>Rattus turkestanicus</i> (Satunin, 1903)	Least Concern	
<i>Rattus vicerex</i> (Bonhote, 1903)	Least Concern	
<i>Rhombomys opimus</i> (Lichtenstein, 1823)	Vulnerable EN ↓ VU	B2ab(iii)
<i>Tatera indica</i> (Hardwicke, 1807)	Least Concern	
Sciuridae		
<i>Eoglaucomys fimbriatus</i> (Gray, 1837)	Least Concern	
<i>Eupetaurus cinereus</i> Thomas, 1888	Endangered	B1ab(iii)+2ab(iii)
<i>Funambulus pennantii</i> Wroughton, 1905	Least Concern	
<i>Hylomyscus baberi</i> (Blyth, 1847)	Endangered	B1ab(iii)+2ab(iii)
<i>Marmota caudata</i> (Geoffroy, 1844)	Near Threatened VU ↓ NT	B1ab(ii,iii)+2ab(ii,iii)
<i>Marmota himalayana</i> (Hodgson, 1841)	Data Deficient	
<i>Petaurista petaurista</i> (Pallas, 1766)	Near Threatened	
Soricomorpha		
Soricidae		
<i>Crocidura gueldenstaedtii</i> (Pallas, 1811)	Not Evaluated	
<i>Crocidura zarudnyi</i> Ognev, 1928	Least Concern	
<i>Sorex minutus</i> Linnaeus, 1766	Least Concern	
<i>Sorex planiceps</i> Miller, 1911	Least Concern	
<i>Suncus stoliczkanus</i> (Anderson, 1877)	Least Concern	
<i>Suncus etruscus</i> (Savi, 1822)	Least Concern	
<i>Suncus murinus</i> (Linnaeus, 1766)	Least Concern	

**Table 15: Global and National status of NVSM species occurring in Sri Lanka
(derived using IUCN Ver. 3.1 & 3.0)**

Scientific name	Status	Criteria
Sri Lanka Endemics (Global status derived using IUCN Version 3.1)		
Soricomorpha		
Soricidae		
<i>Crocidura miya</i> Phillips, 1929	Endangered	B1ab(iii)+2ab(iii)
<i>Solisorex pearsonii</i> Thomas, 1924	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Suncus fellowesgordoni</i> Phillips, 1932	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Suncus zeylanicus</i> Phillips, 1928	Endangered	B1ab(ii,iii)+2ab(ii,iii)
Rodentia		
Muridae		
<i>Mus fernandoni</i> (Phillips, 1932)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Mus mayori</i> (Thomas, 1915)	Endangered	B1ab(ii,iii)
<i>Rattus montanus</i> Phillips, 1932	Endangered	B1ab(ii,iii)+2ab(ii,iii)
<i>Srilankamys ohiensis</i> (Phillips, 1929)	Vulnerable	B1ab(ii,iii)+2ab(ii,iii)
<i>Vandeleuria nolthenii</i> (Phillips, 1929)	Endangered	B1ab(ii,iii)+2ab(ii,iii)
Sciuridae		
<i>Funambulus layardi</i> (Blyth, 1849)	Vulnerable	A3c+4c;B1ab(ii,iii)
Sri Lanka Non-endemics (National status derived using IUCN Version 3.0)		
Lagomorpha		
Leporidae		
<i>Lepus nigricollis</i> Cuvier, 1823	Least Concern	
Pholidota		
Manidae		
<i>Manis crassicaudata</i> (Gray, 1827)	Data Deficient	
Rodentia		
Hystriidae		
<i>Hystrix indica</i> (Kerr, 1792)	Least Concern	
Muridae		
<i>Bandicota bengalensis</i> (Gray & Hardwicke, 1833)	Least Concern	
<i>Bandicota indica</i> (Bechstein, 1800)	Least Concern	
<i>Cremnomys blanfordi</i> (Thomas, 1881)	Least Concern	
<i>Golunda ellioti</i> Gray, 1837	Least Concern	
<i>Millardia meltada</i> (Gray, 1837)	Least Concern	
<i>Mus booduga</i> (Gray, 1837)	Least Concern	
<i>Mus cervicolor</i> Hodgson, 1845	Least Concern	
<i>Mus musculus</i> Linnaeus, 1758	Least Concern	
<i>Rattus norvegicus</i> (Berkenhout, 1769)	Not Evaluated	
<i>Rattus rattus</i> (Linnaeus, 1758)	Least Concern	
<i>Tatera indica</i> (Hardwicke, 1807)	Least Concern	
<i>Vandeleuria oleracea</i> (Bennett, 1832)	Least Concern	
Sciuridae		
<i>Funambulus palmarum</i> (Linnaeus, 1766)	Least Concern	
<i>Funambulus sublineatus</i> (Waterhouse, 1838)	Endangered	B2ab(ii,iii,iv)

Scientific name	Status	Criteria
<i>Petaurista philippensis</i> (Elliot, 1839)	Endangered	B2ab(ii,iii,v)
<i>Petinomys fuscocapillus</i> (Jerdon, 1847)	Vulnerable	B1ab(ii,iii)+2ab(ii,iii)
<i>Ratufa macroura</i> (Pennant, 1769)	Endangered	D
Soricomorpha		
Soricidae		
<i>Crocidura horsfieldi</i> (Tomes, 1856)	Vulnerable	B1ab(iii)+2ab(iii)
<i>Feroculus feroculus</i> (Kelaart, 1850)	Endangered	B1ab(iii)+2ab(iii)
<i>Suncus montanus</i> (Kelaart, 1850)	Endangered	B2ab(ii,iii)
<i>Suncus etruscus</i> (Savi, 1822)	Endangered	B1ab(iii)+2ab(iii)
<i>Suncus murinus</i> (Linnaeus, 1766)	Least Concern	

NVSMs in protected areas in South Asia

The current knowledge on NVSMs in protected areas poses important research and management questions as 109 species have been reported as occurring in protected areas of the region. However, the lack of studies in protected areas and a distinct lack of focus on smaller mammals in census and surveys by the forest department has resulted in nearly 41% of NVSMs not reported from any protected area in South Asia. The absence in some cases could be in fact genuine, but in general, thorough surveys in protected areas are required to determine their presence or absence in these localities.

One-hundred-and-fifty protected areas in South Asia have NVSMs reported until date, of which only 15 protected areas have more than 10 species, while a staggering 101 protected areas have one, two or three species recorded. The remaining areas (27) have between four and nine species. The number of protected areas in South Asia where NVSMs have been recorded are 150 (3 in Bangladesh, none in Bhutan, 99 in India, 13 in Nepal, 16 in Pakistan and 19 in Sri Lanka). This is a clear reflection of the paucity of studies of NVSMs in areas that supposedly have the most protection. Although India leads the countries in this region in having the most numerous protected areas with the most NVSM species recorded in them, given the size of the country and the number of species occurring in the country, the gap in knowledge is astounding, as two-thirds of the protected areas have three species or less of NVSMs reported. Only three protected areas in India have more than 18 species recorded, clearly an indication of the importance of documentation and studies accorded by the officials in those areas to this group and to wildlifers interested in studying the group.

Eighty-two protected areas in India have endemic NVSM species, while 80 have non-endemic species. Endemic and non-endemic NVSMs have been recorded in 11 and 13 Sri Lankan protected areas, respectively. Table 16 shows the number of protected areas recorded as having endemic and non-endemic NVSMs in the region.

Table 17 lists the species recorded in protected areas in South Asia as known to the participants at the C.A.M.P. workshop and through literature search. Seventy-six species of NVSMs are not recorded from any protected area in South Asia. This may be due to lack of systematic surveys in these areas. Table 18 lists NVSMs not recorded in any protected area until now and any new information on their occurrence in protected areas is welcome in updating the present knowledge.

Table 16: Protected areas recorded for NVSM species in South Asia

Country	No. of PAs having Endemic NVSMs	No. of PAs having Nonendemic NVSMs
Bangladesh	1	2
Bhutan	-	-
India	82	80
Nepal	4	11
Pakistan	3	15
Sri Lanka	11	13

Table 17: Non-volant small mammals in protected areas in South Asia

Taxon	Country	Protected area
Erinaceomorpha		
Erinaceidae		
<i>Hemiechinus auritus</i>	Pakistan	<u>Baluchistan</u> : Ziaret Juniper Forest WS, Nag Valley GR
<i>Hemiechinus collaris</i>	India	<u>Gujarat</u> : Narayan Sarovar WS <u>Rajasthan</u> : Desert NP
	Pakistan	<u>Punjab</u> : Lal Suhanra NP <u>Sind</u> : Kirthar NP, Indus GR
<i>Hemiechinus hypomelas</i>	Pakistan	<u>Baluchistan</u> : Hazar Ganji NP
<i>Hemiechinus micropus</i>	India	<u>Gujarat</u> : Narayan Sarovar WS <u>Rajasthan</u> : Desert NP
Lagomorpha		
Leporidae		
<i>Caprolagus hispidus</i>	India	<u>Assam</u> : Barnodi WS, Manas WS <u>Madhya Pradesh</u> : Kanha NP <u>Uttar Pradesh</u> : Dudhwa NP <u>West Bengal</u> : Jaldapara WS
	Nepal	<u>Far Western Nepal</u> : Royal Shukla Phanta WR
<i>Lepus nigricollis</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Kinnersani WS, Mahaveer Harina Vanasthali NP, Manjira WS, Mrugvani NP, Nagarjunasagar-Srisaillam TR, Nellapattu WS, Pocharam WS, Pranahita WS, Pulicat Lake WS, Siwaram WS, Sri Venkateswara NP <u>Bihar</u> : Kaimur WS <u>Kerala</u> : Aralam WS, Chimmomy WS, Idukki WS, Neyyar WS, Parambikulam WS, Peechi-Vazhani WS, Peppara WS, Periyar TR, Shendurney WS, Silent Valley NP, Thattekkadu BS, Wayanad WS <u>Maharashtra</u> : Sanjay Gandhi NP <u>Orissa</u> : Chandaka-Dampara WS <u>Rajasthan</u> : Desert NP <u>Uttar Pradesh</u> : Dudhwa NP <u>West Bengal</u> : Jaldapara WS
<i>Lepus oiostolus</i>	Nepal	<u>Western Nepal</u> : Annapurna CA <u>Eastern Nepal</u> : Makalu Barun NP, Sagarmatha NP <u>Mid Western Nepal</u> : Shay Phuksundo NP
Ochotonidae		
<i>Ochotona curzoniae</i>	Nepal	<u>Western Nepal</u> : Annapurna CA
<i>Ochotona himalayana</i>	Nepal	<u>Eastern Nepal</u> : Sagarmatha NP
<i>Ochotona roylei</i>	India	<u>Uttaranchal</u> : Nanda Devi NP
	Nepal	<u>Central Nepal</u> : Lang Tang NP <u>Eastern Nepal</u> : Sagarmatha NP <u>Mid Western Nepal</u> : Rara NP

Taxon	Country	Protected area
<i>Ochotona rufescens</i>	Pakistan	<u>Baluchistan</u> : Hazar Ganji NP
Pholidota		
Manidae		
<i>Manis crassicaudata</i>	Bangladesh	Madhupur NP
	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Nagarjunasagar-Srisaillam TR <u>Kerala</u> : Aralam WS, Parambikulam WS, Peechi-Vazhani WS, Periyar TR, Silent Valley NP, Wayanad WS <u>Orissa</u> : Chandaka-Dampara WS <u>Tamil Nadu</u> : Nilgiri BR
	Nepal	Royal Bardia NP, Royal Shukla Phanta WR
<i>Manis pentadactyla</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP, Pakhui WS <u>West Bengal</u> : Buxa TR, Gorumara NP
Rodentia		
Calomyscidae		
<i>Calomyscus baluchi</i>	Pakistan	<u>Baluchistan</u> : Hazar Ganji NP <u>Sind</u> : Dureji GR, Kirthar NP
Dipodidae		
<i>Allactaga elater</i>	Pakistan	<u>Baluchistan</u> : Hazar Ganji NP
<i>Allactaga hotsoni</i>	Pakistan	<u>Baluchistan</u> : Hazar Ganji NP
<i>Jaculus blanfordi</i>	Pakistan	<u>Baluchistan</u> : Zangi Nawar GR
Hystriidae		
<i>Atherurus macrourus</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Hystrix brachyura</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
	Nepal	<u>Central Nepal</u> : Lang Tang NP, Sagarmatha NP <u>Eastern Nepal</u> : Makalu Barun NP
<i>Hystrix indica</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Mrugvani NP, Nagarjunasagar-Srisaillam TR, Nellapattu WS, Pocharam WS, Pranahita WS, Pulicat Lake WS, Siwaram WS, Sri Venkateswara NP <u>Kerala</u> : Aralam WS, Chimmomy WS, Chinnar WS, Idukki WS, Neyyar WS, Parambikulam WS, Peechi WS, Peppara WS, Periyar TR, Silent Valley NP, Thattekkadu BS, Wayanad WS <u>Orissa</u> : Chandaka-Dampara WS <u>Rajasthan</u> : Desert NP
	Nepal	Karnali WR, Lang Tang NP, Royal Chitwan NP, Shukla Phanta WR
	Pakistan	Changa Manga WS, Chinji NP, Hazar Ganji NP, Khanewal Plant S, Kirthar NP, Lal Suhanara NP
	Sri Lanka	Gal Oya NP, Randenigala NP, Wilpattu NP, Yala NP

Taxon	Country	Protected area
Muridae		
<i>Acomys dimidiatus</i>	Pakistan	<u>Sind</u> : Kirthar NP
<i>Alticola roylei</i>	India	<u>Uttaranchal</u> : Nanda Devi NP
<i>Alticola stoliczkanus</i>	Nepal	<u>Eastern Nepal</u> : Makalu Barun NP, Sagarmatha NP
<i>Apodemus draco</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Apodemus orestes</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Bandicota bengalensis</i>	India	<u>Andhra Pradesh</u> : Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunasagar-Srisailem TR, Pocharam WS, Pranahita WS, Pulicat Lake WS, Siwaram WS, Sri Venkateswara NP <u>Orissa</u> : Chandaka-Dampara WS
<i>Bandicota indica</i>	India	<u>Andhra Pradesh</u> : Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunasagar-Srisailem TR, Pocharam WS, Pranahita WS, Pulicat Lake WS, Siwaram WS, Sri Venkateswara NP <u>Orissa</u> : Chandaka-Dampara WS
<i>Bandicota maxima</i>	India	<u>Goa</u> : Molem WS
<i>Berylmys mackenziei</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Cannomys badius</i>	India	<u>Mizoram</u> : Dampa WS
	Nepal	<u>Central Nepal</u> : Royal Chitwan NP <u>Eastern Nepal</u> : Makalu Barun NP
<i>Chiropodomys gliroides</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Cremnomys blanfordi</i>	India	<u>Maharashtra</u> : Pench NP <u>Tamil Nadu</u> : Mudumalai WS <u>Orissa</u> : Chandaka-Dampara WS
	Sri Lanka	<u>Eastern Province</u> : Gal Oya NP <u>Northeastern Province</u> : Kumana WS <u>Southern Province</u> : Yala NP
<i>Cremnomys cutchicus</i>	India	<u>Andhra Pradesh</u> : Sri Lankamalleshwaram WS
<i>Ellobius fuscocapillus</i>	Pakistan	<u>Baluchistan</u> : Torgah/Thoghar NP
<i>Eothenomys melanogaster</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Gerbillus cheesemani</i>	Pakistan	<u>Baluchistan</u> : Hazar Ganji NP
<i>Gerbillus gleadowi</i>	India	<u>Rajasthan</u> : Desert NP
<i>Gerbillus nanus</i>	India	<u>Rajasthan</u> : Desert NP

Taxon	Country	Protected area
<i>Golunda ellioti</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Kawal WS, Nagarjunasagar-Srisailem TR <u>Karnataka</u> : Bannerghatta NP <u>Orissa</u> : Chandaka-Dampara WS <u>West Bengal</u> : Jaldapara WS
	Sri Lanka	<u>Uva Province</u> : Horton Plains NP
<i>Leopoldamys edwardsi</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Meriones crassus</i>	Pakistan	<u>Baluchistan</u> : Hazar Ganji NP
<i>Meriones hurrianae</i>	India	<u>Rajasthan</u> : Desert NP
<i>Meriones persicus</i>	Pakistan	<u>Baluchistan</u> : Hazar Ganji NP
<i>Microtus sikimensis</i>	Nepal	<u>Central Nepal</u> : Lang Tang NP <u>Eastern Nepal</u> : Kanchun Junga NP
<i>Millardia gleadowi</i>	India	<u>Rajasthan</u> : Desert NP
<i>Millardia meltada</i>	India	<u>Andhra Pradesh</u> : Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Mrugvani NP, Nagarjunasagar-Srisailem TR, Nelapattu WS, Pocharam WS, Pranahita WS, Pulicat Lake WS, Siwaram WS, Sri Venkateswara NP
	Sri Lanka	<u>Southern Province</u> : Yala NP
<i>Mus booduga</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Kawal WS, Manjira WS, Nagarjunasagar-Srisailem TR, Pocharam WS, Sri Venkateswara NP <u>Madhya Pradesh</u> : Kuno-Palpur WS <u>Rajasthan</u> : Darrah WS <u>Orissa</u> : Chandaka-Dampara WS <u>Tamil Nadu</u> : Kalakkad-Mundunthurai TR, Srivilliputtur Grizzled Giant Squirrel WS
	Sri Lanka	Runakanda FR, Dawalawe NP, Warateligoda FR, Yagirala FR <u>Sabargamuwa Province</u> : Sinharaja FR
<i>Mus cervicolor</i>	India	<u>West Bengal</u> : Jaldapara WS
<i>Mus cookii</i>	India	<u>Arunachal Pradesh</u> : Namdapha TR
<i>Mus famulus</i>	India	<u>Kerala</u> : Eravikulam NP <u>Tamil Nadu</u> : Mukurthi NP
<i>Mus fernandoni</i>	Sri Lanka	<u>Southern Province</u> : Yala NP
<i>Mus mayori</i>	Sri Lanka	<u>Uva Province</u> : Horton Plains NP
<i>Mus musculus</i>	India	<u>Andhra Pradesh</u> : Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunasagar-Srisailem TR, Nellapattu BS, Pocharam WS, Pranahita WS, Pulicat

Taxon	Country	Protected area
		Lake WS, Siwaram WS, Sri Venkateswara NP <u>Rajasthan</u> : Desert NP <u>Kerala</u> : Eravikulam NP
<i>Mus pahari</i>	India	<u>Mizoram</u> : Dampa WS, Sairep RF
<i>Mus phillipsi</i>	India	<u>Andhra Pradesh</u> : Sri Lankamalleswaram WS <u>Maharashtra</u> : Melghat TR, Tadoba TR
<i>Mus platythrix</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Manjira WS, Nagarjunasagar-Srisaillam TR, Pocharam WS, Sri Venkateswara NP <u>Tamil Nadu</u> : Mudumalai WS
<i>Niviventer brahma</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Rattus montanus</i>	Sri Lanka	Horton Plains NP, Knuckles FR
<i>Rattus rattus</i>	India	<u>Andhra Pradesh</u> : Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Manjira WS, Mahaveer Harina Vanasthali NP, Nagarjunasagar-Srisaillam TR, Nellapattu WS, Pranahita WS, Pocharam WS, Pulicat Lake WS, Siwaram WS, Sri Venkateswara NP <u>Orissa</u> : Chandaka-Dampara WS
	Pakistan	<u>North West Frontier Province</u> : Ayyubia NP <u>Punjab</u> : Lal Suhanara NP <u>Sind</u> : Kirthar NP
<i>Rhizomys pruinosus</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP <u>Mizoram</u> : Dampa TR
<i>Rhombomys opimus</i>	Pakistan	<u>Baluchistan</u> : Hazar Ganji NP
<i>Srilankamys ohienensis</i>	Sri Lanka	Delwala FR, Horton Plains NP, Knuckles Range FR, Sinharaja FR
<i>Tatera indica</i>	India	<u>Andhra Pradesh</u> : Gundla Brahmeshwaram WS, Kawal WS, Nagarjunasagar-Srisaillam TR, Pocharam WS, Rollapadu WS, Sri Venkateswara WS <u>Gujarat</u> : Darrah WS <u>Karnataka</u> : Bannerghatta NP <u>Madhya Pradesh</u> : Kuno-Palpur WS <u>Rajasthan</u> : Desert NP, Sariska NP <u>Tamil Nadu</u> : Kalakkad-Mundanthurai TR, Mudumalai WS, Srivilliputhur Grizzled Giant Squirrel Sanctuary
	Sri Lanka	Udawalawe NP, Yala NP
<i>Vandeleuria nolthenii</i>	Sri Lanka	<u>Central Province</u> : Knuckles FR
<i>Vandeleuria oleracea</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Nagarjunasagar-Srisaillam TR, Pocharam WS <u>Karnataka</u> : Bannerghatta NP
	Sri Lanka	<u>Central Province</u> : Knuckles FR

Taxon	Country	Protected area
Platacanthomyidae		
<i>Platacanthomys lasiurus</i>	India	<u>Kerala</u> : Peppara WS <u>Tamil Nadu</u> : Indira Gandhi WS, Kalakkad WS, Mudumalai WS, Mukurthi NP
Sciuridae		
<i>Belomys pearsonii</i>	India	<u>Arunachal Pradesh</u> : Pakhui WS <u>Mizoram</u> : Nengpui WS
	Nepal	<u>Central Nepal</u> : Royal Chitwan NP
<i>Biswamoyopterus biswasi</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Callosciurus erythraeus</i>	India	<u>Arunachal Pradesh</u> : Eagle Nest WS, Kamlang WS, Namdapha NP, Pakhui WS, Sessa Orchid Sanctuary, Tale Valley WS
<i>Callosciurus pygerythrus</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP, Pakhui WS <u>West Bengal</u> : Gorumara NP, Mahananda WS
<i>Dremomys lokriah</i>	Bangladesh	Lawachara NP
	India	<u>Arunachal Pradesh</u> : Eagle Nest WS, Kamlang WS, Namdapha NP, Pakhui WS, Sessa Orchid Sanctuary, Tale Valley WS
<i>Dremomys rufigenis</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Funambulus layardi</i>	Sri Lanka	<u>Central Province</u> : Horton Plains NP
<i>Funambulus palmarum</i>	India	<u>Andhra Pradesh</u> : Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunasagar-Srisailem TR, Nellapattu BS, Pranahita WS, Pulicat Lake WS, Siwaram WS, Sri Lankamalleswaram NP, Sri Venkateswara NP <u>Chhattisgarh</u> : Indravathi NP <u>Madhya Pradesh</u> : Kanha NP, Satpura NP <u>Orissa</u> : Chandaka-Dampara WS <u>Rajasthan</u> : Kumbhalgarh WS, Phulwari WS
<i>Funambulus pennantii</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunasagar-Srisailem TR, Nellapattu BS, Pranahita WS, Pocharam WS, Siwaram WS <u>Gujarat</u> : Balaram-Ambaji WS, Jessore WS, Narayan Sarovar WS <u>Orissa</u> : Chandaka-Dampara WS <u>Rajasthan</u> : Desert NP
<i>Funambulus sublineatus</i>	India	<u>Kerala</u> : Chimmomy WS, Periyar TR, Silent Valley NP, Thattekadu BS, Wayanad WS
	Sri Lanka	<u>Central Province</u> : Horton Plains NP <u>Sabaragamuwa Province</u> : Adam's Peak WS
<i>Funambulus tristriatus</i>	India	<u>Kerala</u> : Aralam WS, Neyyar WS, Parambikulam WS, Peppara WS, Peechi-Vazhani WS, Silent Valley NP, Wayanad WS <u>Karnataka</u> : Nagarhole NP <u>Maharashtra</u> : Sanjay Gandhi NP

Taxon	Country	Protected area
		<u>Tamil Nadu</u> : Indira Gandhi NP, Kalakkad-Mundanthurai TR, Srivilliputhur Grizzled Giant Squirrel WS,
<i>Hylopetes alboniger</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Marmota caudata</i>	India	<u>Disputed Kashmir</u> : Khunjerab NP
<i>Petaurista petaurista</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP
<i>Petaurista philippensis</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS <u>Bihar</u> : Kaimur WS, Valmiki TR <u>Karnataka</u> : Bandipur NP, Nagarhole NP <u>Kerala</u> : Chinnar WS, Parambikulam WS, Peechi-Vazhani WS, Periyar TR, Thattekadu BS <u>Madhya Pradesh</u> : Bori WS, Kanha NP <u>Rajasthan</u> : Phulwari WS, Sitamata WS <u>Tamil Nadu</u> : Kalakkad-Mundanthurai TR
	Sri Lanka	<u>Central Province</u> : Horton Plains NP, Knuckles FR <u>Sabaragamuwa Province</u> : Sinharaja FR
<i>Petinomys fuscocapillus</i>	India	<u>Kerala</u> : Chimmony WS, Parambikulam WS, Peechi-Vazhani WS, Periyar NP, Thattekadu BS <u>Tamil Nadu</u> : Kalakkad-Mundanthurai TR
	Sri Lanka	<u>Central Province</u> : Adam's Peak WS, Kanneliya FR, Knuckles FR <u>Sabaragamuwa Province</u> : Sabaragamuwa FR, Sinharaja FR
<i>Ratufa bicolor</i>	Bangladesh	Lawachara NP
	India	<u>Arunachal Pradesh</u> : Eagle Nest WS, Kamlang WS, Mehao WS, Namdapha NP, Pakhui WS, Tale Valley WS <u>West Bengal</u> : Buxa TR, Gorumara NP, Jaldapara WS, Mahananda WS
<i>Ratufa indica</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Nagarjunasagar-Srisailam TR <u>Kerala</u> : Eravikulam WS, Neyyar WS, Parambikulam WS, Periyar TR, Peppara WS, Silent Valley NP, Wayanad WS <u>Maharashtra</u> : Bhimashankar WS, Tadoba NP <u>Tamil Nadu</u> : Indira Gandhi WS, Kalakkad-Mundanthurai TR, Mudumalai WS, Srivilliputhur Grizzled Giant Squirrel WS, Kallar WS, Kulathupala WS, Senthumani WS
<i>Ratufa macroura</i>	India	<u>Tamil Nadu</u> : Anamalai WS, Srivilliputhur Grizzled Giant Squirrel WS <u>Kerala</u> : Chinnar WS
	Sri Lanka	<u>Central Province</u> : Horton Plains NP <u>Sabaragamuwa Province</u> : Sinharaja RF
<i>Tamiops maclellandi</i>	India	<u>Arunachal Pradesh</u> : Pakhui WS, Namdapha NP
Scandentia		
Tupaiaidae		
<i>Anathana ellioti</i>	India	<u>Andhra Pradesh</u> : Eturnagaram WS, Gundla Brahmeshwaram WS, Kawal WS, Nagarjunasagar-Srisailam TR <u>Kerala</u> : Wayanad WS

Taxon	Country	Protected area
		<u>Madhya Pradesh</u> : Bori WS and NP, Pench (Priyadarshini) NP <u>Maharashtra</u> : Tadoba NP <u>Orissa</u> : Chandaka Dampara WS, Satkosia Gorge WS
<i>Tupaia belangeri</i>	India	<u>Arunachal Pradesh</u> : Mehao WS, Namdapha NP, Pakhui WS <u>Mizoram</u> : Dampa WS <u>West Bengal</u> : Jaldapara WS, Singhalila NP
<i>Tupaia nicobarica</i>	India	<u>Andaman & Nicobar Islands</u> : Campbell Bay WS, Galathea NP
Soricomorpha		
Soricidae		
<i>Anourosorex squamipes</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP <u>Mizoram</u> : Murlen NP
<i>Chimmarogale himalayica</i>	India	<u>Arunachal Pradesh</u> : Namdapha NP <u>Mizoram</u> : Murlen NP
<i>Crociodura andamanensis</i>	India	<u>Andaman & Nicobar Islands</u> : Mt. Harriet NP
<i>Crociodura attenuata</i>	India	<u>West Bengal</u> : Jaldapara WS
<i>Crociodura jenkinsi</i>	India	<u>Andaman & Nicobar Islands</u> : Mt. Harriet NP
<i>Crociodura nicobarica</i>	India	<u>Andaman & Nicobar Islands</u> : Campbell Bay NP, Galathea NP
<i>Crociodura zarudnyi</i>	Pakistan	<u>Baluchistan</u> : Hingol NP, Zialet Juniper Forest WS
<i>Feroculus feroculus</i>	India	<u>Kerala</u> : Eravikulam NP <u>Tamil Nadu</u> : Mukurthi NP
	Sri Lanka	<u>Central Province</u> : Horton Plains NP
<i>Solisorex pearsonii</i>	Sri Lanka	<u>Central Province</u> : Hakgala Nature Reserve
<i>Soriculus caudatus</i>	Nepal	<u>Central Nepal</u> : Lang Tang NP, Shivpuri NP <u>Eastern Nepal</u> : Makalu Barun NP <u>Mid Western Nepal</u> : Rara NP <u>Western Nepal</u> : Annapurna CA
<i>Soriculus leucops</i>	Nepal	<u>Central Nepal</u> : Lang Tang NP <u>Eastern Nepal</u> : Makalu Barun NP <u>Mid Western Nepal</u> : Rara NP <u>Western Nepal</u> : Annapurna CA
<i>Suncus dayi</i>	India	<u>Kerala</u> : Eravikulam NP <u>Tamil Nadu</u> : Mukurthi NP
<i>Suncus etruscus</i>	India	<u>Andhra Pradesh</u> : Kawal WS <u>Kerala</u> : Eravikulam NP <u>Madhya Pradesh</u> : Kanha NP
<i>Suncus fellowesgordoni</i>	Sri Lanka	<u>Central Province</u> : Knuckles FR
<i>Suncus montanus</i>	India	<u>Karnataka</u> : Biligiri Rangaswamy Temple WS, Nagarhole NP <u>Kerala</u> : Periyar TR

Taxon	Country	Protected area
		<u>Tamil Nadu</u> : Mudumalai WS
	Sri Lanka	<u>Central Province</u> : Horton Plains NP, Knuckles FR
<i>Suncus murinus</i>	India	<u>Andhra Pradesh</u> : Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunasagar-Srisailem TR, Nellapattu WS, Pocharam WS, Pranahita WS, Pulicat Lake WS, Siwaram WS, Sri Venkateswara NP <u>Bihar</u> : Kaimur WS, Valmiki TR <u>Madhya Pradesh</u> : Kanha NP <u>Maharashtra</u> : Sanjay Gandhi NP <u>Rajasthan</u> : Desert NP <u>West Bengal</u> : Jaldapara WS
	Pakistan	Ayyubia NP, Chumbi Surla WS, Keti Bunder (North & South) WS
<i>Suncus stoliczkanus</i>	India	<u>Karnataka</u> : Dandeli NP <u>Maharashtra</u> : Sanjay Gandhi NP
	Nepal	<u>Eastern Nepal</u> : Makalu Barun NP <u>Mid Western Nepal</u> : Rara NP
	Pakistan	<u>Punjab</u> : Lal Suhanra NP <u>Sind</u> : Kirthar NP
<i>Suncus zeylanicus</i>	Sri Lanka	<u>Sabaragamuwa Province</u> : Sinharaja FR
Talpidae		
<i>Euroscaptor micrura</i>	India	<u>Assam</u> : Kaziranga NP <u>Mizoram</u> : Murlen NP <u>West Bengal</u> : Jaldapara WS
<i>Parascaptor leucura</i>	Bangladesh	Hagherkhil WS, Lawachara NP
	India	<u>Meghalaya</u> : Balphakram NP, Nongkhyllam WS <u>Mizoram</u> : Murlen NP <u>Tripura</u> : Rowa WS

BR - Biosphere Reserve; BS - Bird Sanctuary; CA - Conservation Area; FR - Forest Reserve; GR - Game Reserve; NP - National Park; RF - Reserve Forest; S - Sanctuary; TR - Tiger Reserve; WR - Wildlife Reserve; WS - Wildlife Sanctuary;

Table 18: NVSMs not yet recorded from any protected area in South Asia

Erinaceomorpha	<i>Nesokia indica</i> (Gray & Hardwicke, 1832)
Erinaceidae	<i>Niviventer eha</i> (Wroughton, 1916)
<i>Hemiechinus nudiventris</i> (Horsfield, 1851)	<i>Niviventer fulvescens</i> (Gray, 1847)
Lagomorpha	<i>Niviventer langbianis</i> (Robinson & Kloss, 1922)
Leporidae	<i>Niviventer niviventer</i> (Hodgson, 1836)
<i>Lepus capensis</i> Linnaeus, 1758	<i>Niviventer tenaster</i> (Thomas, 1916)
<i>Lepus tolai</i> Pallas, 1778	<i>Rattus burrus</i> (Miller, 1902)
Ochotonidae	<i>Rattus exulans</i> (Peale, 1848)
<i>Ochotona forresti</i> Thomas, 1923	<i>Rattus nitidus</i> (Hodgson, 1845)
<i>Ochotona ladacensis</i> (Gunther, 1875)	<i>Rattus norvegicus</i> (Berkenhout, 1769)
<i>Ochotona macrotis</i> (Gunther, 1875)	<i>Rattus palmarum</i> (Zelevor, 1869)
<i>Ochotona nubrica</i> Thomas, 1922	<i>Rattus ranjinae</i> Agrawal & Ghosh, 1969
<i>Ochotona thibetana</i> (Milne-Edwards, 1871)	<i>Rattus sikkimensis</i> (Hinton, 1919)
Rodentia	<i>Rattus stoicus</i> (Miller, 1902)
Calomyscidae	<i>Rattus tanezumi</i> (Temminck, 1844)
<i>Calomyscus hotsoni</i> Thomas, 1920	<i>Rattus turkestanicus</i> (Satunin, 1903)
Cricetidae	<i>Rattus vicerex</i> (Bonhote, 1903)
<i>Cricetulus alticola</i> Thomas, 1917	Sciuridae
<i>Cricetulus migratorius</i> (Pallas, 1773)	<i>Dremomys pernyi</i> (Milne-Edwards, 1867)
Dipodidae	<i>Eoglaucomyus fimbriatus</i> (Gray, 1837)
<i>Salpingotus michaelis</i> Fitzgibbon, 1966	<i>Eupetaurus cinereus</i> Thomas, 1888
<i>Sicista concolor</i> (Buchner, 1892)	<i>Hylopetes baberi</i> (Blyth, 1847)
Gliridae	<i>Marmota himalayana</i> (Hodgson, 1841)
<i>Dryomys nitedula</i> (Pallas, 1778)	<i>Petaurista caniceps</i> (Blyth, 1842)
Muridae	<i>Petaurista magnificus</i> (Hodgson, 1836)
<i>Alticola albicauda</i> (True, 1894)	<i>Petaurista nobilis</i> (Gray, 1842)
<i>Alticola argentatus</i> (Severtzov, 1879)	Soricomorpha
<i>Alticola blanfordi</i> (Scully, 1880)	Soricidae
<i>Alticola montosa</i> (True, 1894)	<i>Crocidura gueldenstaedtii</i> (Pallas, 1811)
<i>Alticola stracheyi</i> (Thomas, 1880)	<i>Crocidura hispida</i> Thomas, 1913
<i>Apodemus gurkha</i> Thomas, 1924	<i>Crocidura horsfieldi</i> (Tomes, 1856)
<i>Apodemus latronum</i> (Thomas, 1911)	<i>Crocidura leucodon</i> (Hermann, 1780)
<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	<i>Crocidura miya</i> Phillips, 1929
<i>Berylmys bowersi</i> (Anderson, 1879)	<i>Crocidura pergrisea</i> Miller, 1913
<i>Berylmys manipulus</i> (Thomas, 1916)	<i>Nectogale elegans</i> Milne-Edwards, 1870
<i>Cremnomys elvira</i> (Ellerman, 1947)	<i>Sorex bedfordiae</i> Thomas, 1911
<i>Dacnomys millardi</i> Thomas, 1916	<i>Sorex excelsus</i> Allen, 1923
<i>Diomys crumpi</i> Thomas, 1917	<i>Sorex minutus</i> Linnaeus, 1766
<i>Gerbillus aquilus</i> Schlitter & Stezer, 1972	<i>Sorex planiceps</i> Miller, 1911
<i>Hadromys humei</i> (Thomas, 1886)	<i>Soriculus macrurus</i> Blanford, 1888
<i>Hyperacrius fertilis</i> (True, 1894)	<i>Soriculus nigriscens</i> (Gray, 1842)
<i>Hyperacrius wynnei</i> (Blanford, 1881)	
<i>Leopoldamys sabanus</i> (Thomas, 1887)	
<i>Meriones lybicus</i> Lichtenstein, 1823	
<i>Micromys minutus</i> (Pallas, 1771)	
<i>Microtus juldaschi</i> (Severtzov, 1879)	
<i>Microtus leucurus</i> (Blyth, 1863)	
<i>Millardia kondana</i> Mishra & Dhanda, 1975	
<i>Mus saxicola</i> Elliot, 1839	

Distribution of NVSMs in India

As is evident from the Table 19 below, most states are well represented for NVSMs, with West Bengal recording the highest diversity, followed by Arunachal Pradesh and Jammu & Kashmir. The statistics indicate a distinct lack of uniformity in studies throughout the country, especially in states like Goa, Chattisgarh, Tripura, Punjab, Bihar, Haryana, Uttar Pradesh, Orissa and Jharkhand where the knowledge of NVSM diversity is extremely to moderately poor. If West Bengal is any indication to go by, more surveys are required throughout the country to determine complete NVSM diversity.

Table 19: Summary of recorded NVSMs until date in different states in India

State	No. of species	State	No. of species	State	No. of species
Andaman & Nicobar Islands	8	Himachal Pradesh	27	Nagaland	29
Andhra Pradesh	26	Jammu & Kashmir	40	Orissa	16
Arunachal Pradesh	45	Jharkhand	18	Punjab	10
Assam	27	Karnataka	32	Rajasthan	27
Bihar	12	Kerala	34	Sikkim	33
Chattisgarh	8	Madhya Pradesh	25	Tamil Nadu	33
Goa	4	Maharashtra	30	Tripura	6
Gujarat	25	Manipur	33	Uttar Pradesh	14
Haryana	13	Meghalaya	35	Uttaranchal	27
		Mizoram	21	West Bengal	51

Afghanistan NVSMs

The workshop was restricted to assessing South Asian species of NVSMs. However, with the publication of the book *Mammals of Afghanistan* by Kushal Habibi (2003), the interest in the status of mammals occurring there has increased manifold. It was also realized that Afghanistan is more closely related to South Asia being a link to the middle east and central Asian biogeography. Hence in this report a list of NVSMs considered to be occurring in Afghanistan have been included. Table 20 also lists Kushal Habibi's list of NVSMs occurring in Afghanistan from his field work conducted in the 70s in the country. Not many studies on biodiversity have been conducted in Afghanistan since then, and definitely no studies on NVSMs have taken place in the last three decades, which makes this group of small mammals one of the least understood faunal groups of the country. Further, due to the omnipresent wars in Afghanistan, including the deadliest conflict in the period following September 11 2001, there is a total lack of knowledge on the situation of wildlife there, especially from the northern and eastern parts of the country. By including what information is available with us, it is intended that Afghanistan mammals might get better attention and in the subsequent assessments, the information can be included in the South Asian region.

The NVSM report compiled a list of 35 species of NVSMs occurring in Afghanistan, while Habibi's (2003) book records a total of 44 species (Table 20). Since some species are listed in one and not the other, the likelihood of the number of NVSMs in Afghanistan is around 49. This, however, needs thorough study and clarification due to taxonomic confusion between the two listings as is seen in the case of *Hylopetes baberi* and *Hylopetes fimbriatus*. Habibi lists *H. fimbriatus* as occurring in Afghanistan, while actually it is *H. baberi* that occurs there. *H. fimbriatus baberi* was elevated to species.

Table 20: Checklist of mammals occurring in Afghanistan as indicated in the NVSM C.A.M.P. and in Habibi (2003)

Taxon	CAMP (2004) 35 species	Habibi (2003) 44 species	
Erinaceomorpha			
Erinaceidae			
<i>Hemiechinus auritus</i> (Gmelin, 1770)	*	*	
<i>Hemiechinus hypomelas</i> (Brandt, 1836)		*	
<i>Hemiechinus megalotis</i> (Blyth, 1845)		*	Currently treated as synonym of <i>H. auritus</i>
Lagomorpha			
Leporidae			
<i>Lepus capensis</i> Linnaeus, 1758	*	*	
<i>Lepus nigricollis</i> Cuvier, 1823		*	
<i>Lepus tolai</i> Pallas, 1778	*		
Ochotonidae			
<i>Ochotona macrotis</i> (Gunther, 1875)	*	*	
<i>Ochotona rufescens</i> (Gray, 1842)	*	*	
Rodentia			
Calomyscidae			
<i>Calomyscus bailwardi</i> Thomas, 1905		*	Synonymized with <i>C. baluchi</i>
<i>Calomyscus baluchi</i> Thomas, 1920	*		
Cricetidae			
<i>Cricetulus migratorius</i> (Pallas, 1773)	*	*	
Dipodidae			
<i>Allactaga elater</i> (Lichtenstein, 1828)	*	*	
<i>Allactaga hotsoni</i> Thomas, 1920	*	*	
<i>Allactaga euphratica</i> Thomas, 1881		*	
<i>Jaculus blanfordi</i> (Murray, 1884)	*	*	
<i>Salpingotus michaelis</i> Fitzgibbon, 1966	*		
Gliridae			
<i>Dryomys nitedula</i> (Pallas, 1778)	*	*	
Hystriidae			
<i>Hystrix indica</i> (Kerr, 1792)	*	*	
Muridae			
<i>Alticola argentatus</i> (Severtzov, 1879)	*		Afghanistan species is <i>A. argentatus</i> .
<i>Alticola roylei</i> (Gray, 1842)		*	
<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	*	*	
<i>Ellobius fuscocapillus</i> (Blyth, 1842)	*	*	
<i>Ellobius talpinus</i> (Pallas, 1770)		*	
<i>Gerbillus aquilus</i> Schlitter & Stezer, 1972	*		
<i>Gerbillus cheesmani</i> Thomas, 1919		*	
<i>Gerbillus nanus</i> Blanford, 1875		*	
<i>Meriones crassus</i> Sundevall, 1842	*		
<i>Meriones hurrianae</i> (Jerdon, 1867)		*	
<i>Meriones lybicus</i> Lichtenstein, 1823	*	*	
<i>Meriones meridianus</i> (Pallas, 1773)		*	
<i>Meriones persicus</i> (Blanford, 1875)	*	*	

Taxon	CAMP (2004) 35 species	Habibi (2003) 44 species	
<i>Meriones zarudnyi</i> Heptner, 1937		*	
<i>Microtus afghanus</i> (Thomas, 1912)		*	
<i>Microtus arvalis</i> (Pallas, 1778)		*	
<i>Microtus juldaschi</i> (Severtzov, 1879)	*		
<i>Microtus socialis</i> (Pallas, 1773)		*	
<i>Mus musculus</i> Linnaeus, 1758	*	*	
<i>Nesokia indica</i> (Gray & Hardwicke, 1832)	*	*	
<i>Rattus rattoides</i> (Hodgson, 1845)		*	Synonymized with <i>Rattus turkestanicus</i> (Satunin, 1903)
<i>Rattus rattus</i> (Linnaeus, 1758)	*	*	
<i>Rattus turkestanicus</i> (Satunin, 1903)	*		
<i>Rhombomys opimus</i> (Lichtenstein, 1823)	*	*	
<i>Tatera indica</i> (Hardwicke, 1807)	*	*	
Sciuridae			
<i>Eoglaucmys fimbriatus</i> (Gray, 1837)		*	As <i>Hylopetes fimbriatus</i>
<i>Funambulus pennantii</i> Wroughton, 1905	*		
<i>Hylopetes baberi</i> (Blyth, 1847)	*		This species occurs in Afghanistan, not <i>H. fimbriatus</i> (Gray, 1837) as quoted by Habibi (2003). Earlier ' <i>baberi</i> ' was assigned to ' <i>fimbriatus</i> ', now treated distinct.
<i>Marmota caudata</i> (Geoffroy, 1844)	*	*	
<i>Petaurista petaurista</i> (Pallas, 1766)	*	*	
<i>Spermophilus fulvus</i> (Lichtenstein, 1823)		*	
<i>Spermophilopsis leptodactylus</i> (Lichtenstein, 1823)		*	
Soricomorpha			
Soricidae			
<i>Crocidura gueldenstaedtii</i> (Pallas, 1811)	*		
<i>Crocidura russula</i> (Hermann, 1780)		*	
<i>Crocidura suaveolens</i> (Pallas, 1811)		*	
<i>Crocidura zarudnyi</i> Ognev, 1928	*	*	
<i>Suncus etruscus</i> (Savi, 1822)	*		
<i>Suncus murinus</i> (Linnaeus, 1766)	*	*	

Recommendations

Research

Very few NVSMs have been surveyed thoroughly in the region. This was evident from the paucity of distributional information in the recent past. Much of the information was either from museum records or from literature, which does not indicate the present status as accurately (through observation) but would, nonetheless, give an idea of the status through other indirect evidence (inference). It was therefore recommended by the participants of the workshop that survey was the most important research option. Almost all the species were recommended for field surveys (Fig. 4).

Life history studies rated second on the list due to the fact that much of the knowledge of rodents is from museum specimens, which do not contribute to the understanding of the species identification with respect to behaviour. Life history studies would help resolve some tricky taxonomic questions for many of the closely related, similar looking NVSMs in the field.

Taxonomic research was one of the foremost research recommendations for groups such as rodents and insectivores. There has been constant shuffling of taxa in this very confusing group of animals. Added to this, several species known to occur in Sri Lanka have been reported from India based on similar morphology, which needs further examination.

Other recommendations included limiting factor research, genetic studies, trade-related studies and epidemiological studies. Although these recommendations were not commonly suggested for many taxa, their importance for the suggested species is very valuable and should be prioritized along with all the other recommendations.

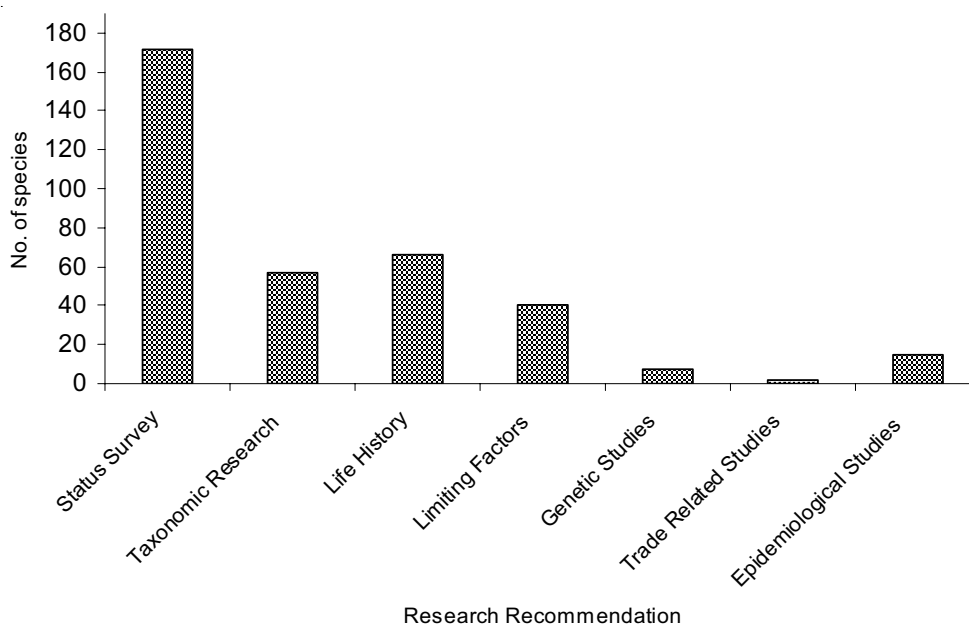


Figure 4: Recommended research action plans for NVSMs in South Asia

Management

Following the recommendation for surveys in research, the first management recommendation is monitoring for most NVSM species. This management tool was considered essential by the participants noting the availability of information and the lack of specific NVSM-related actions in the field. There are serious flaws in implementation of management plans in the regions' wildernesses, since most of the actions revolve around larger charismatic fauna. Very few NVSMs get any benefit from such actions as they could involve changes to habitat conditions that actually are unsuitable for smaller mammals. Hence monitoring habitats and populations of NVSMs is crucial. Habitat management was second highest on the list for the same reason as above. For species where population numbers or trends were known, population management was recommended. Other management recommendations included public awareness, captive breeding and P.H.V.A., the former two being realised as the more important of the recommendations for their inherent benefits to the species at large.

Population and Habitat Viability Assessment (P.H.V.A.) was recommended for only one taxon identified as a need for developing an overall conservation action plan. Conservation action recommendations for the threatened species need to incorporate all variables for the taxa and all stakeholders. A P.H.V.A. allows for broad participation in developing this plan and also allows for the interpretation of variables affecting taxa in determining their probability of extinction.

Addressing habitat loss was considered the first step in tackling conservation of threatened NVSM taxa in South Asia. Wild habitat management was designated as the first priority, mainly to stem the loss by human interference and further to develop suitable habitats for NVSMs. In achieving this, it was felt that management cannot be done in isolation, so public awareness and education were strongly recommended for many taxa. In conjunction these two recommendations would work well in conserving the remaining habitat and populations of NVSMs in their range states/countries.

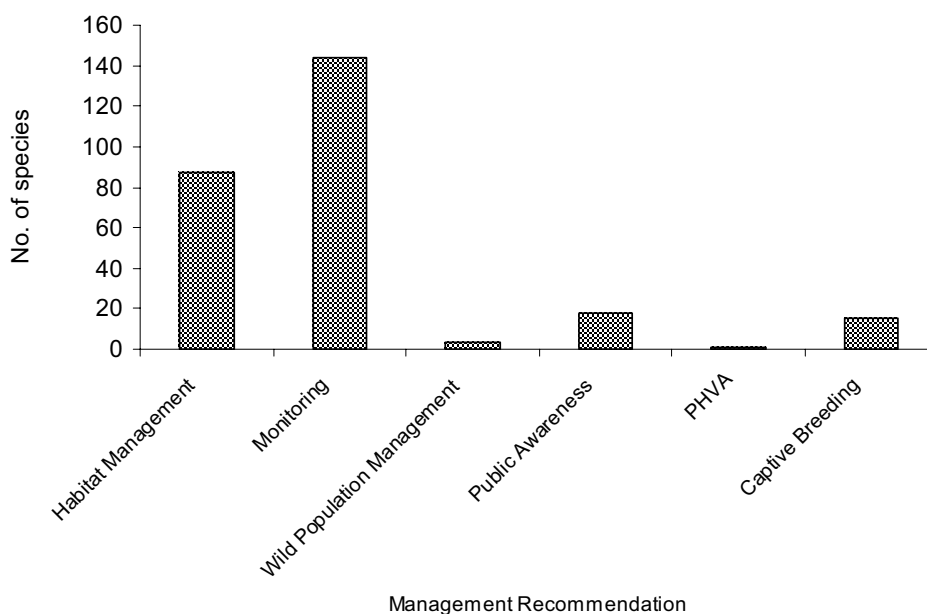


Figure 5: Recommended management action plans for NVSMs in South Asia

Wildlife Legislation for Non-volant Small Mammals

Till today the only NVSMs listed in the Indian Wildlife (Protection) Act under the Schedules for Protection are listed in Table 21. Other South Asian countries' legislation also does not include many small mammals, either volant or non-volant.

In India, a particularly bothersome situation exists with respect to small mammals. In 1972, when the first version of the Indian Wildlife (Protection) Act was passed, a system of schedules was instituted which included a Schedule V, or Vermin Category, meant for animals which were considered nuisance and generally described as pests, at least in urban and agricultural areas.

The inclusion of the term "rats and mice", which covers a very large number of rodents in Schedule V of the Wildlife (Protection) Act was an unfortunate mistake perpetuated decades ago when its implications as a biodiversity issue were not known. The inclusion of the term, "rats and mice" instead of referring to the species name of the few common rodents which are in some instances considered a nuisance to the householder and farmer, Schedule V includes a large number of wild animals which live in forests, are of great utility and importance to ecosystems, and some of which are actually threatened with extinction.

Since the Act was passed, several other animals which have been listed in this category were removed (Wild boar, Jackal, etc.) but "rats and mice" as well as fruit bats have remained. It is, or should be, an embarrassment to the Government, which has passed the Biodiversity Bill and other legislation which are contradictory to this portion of the WL(P)A in policy, spirit and fact.

This issue has been brought to the attention of the Ministry of Environment, Government of India. In 2003, the Ministry of Environment requested the Inspector General for Forests to draw up legislation which would include NVSMs and some other groups which are affected by inclusion in Schedule V or by their absence anywhere in the Act. A copy of the document submitted to the Ministry by the I.G. is included as Appendix I. Some general comments from the document are:

I. In the WPA-1972, as amended in 2002, wild animals now include only the species listed in Schedules I to IV. Therefore, the species included in Schedule V (Vermins) and those excluded from the schedules are no longer 'wild animals'. This has led to some anomalies. For example:

- (a) The Import-Export Policy of Government of India accepts the same definition of wild animals as that given in the WPA-1972. Therefore, although the general tenet of the Policy is to discourage wildlife trade, yet in practice Schedule V animals and non-scheduled animals are available freely for export.
- (b) The Schedules of the WPA-1972 are not exhaustive and a large number of species, many of them endangered, are not covered by the schedules (Ref. A Critical Review of the Schedules of the Wildlife (Protection) Act, 1972 – by S.S. Bist, Indian Forester, October, 1999).
- (c) A large number of non-scheduled species are economically important and prone to bio-piracy.
- (d) With the change in the definition of wild animals in the WPA-1972, non-scheduled animals and Schedule V animals no longer enjoy the protection of Section 12 (i.e. hunting for the purpose of education, research and scientific management).

II. In view of the position explained above, it is essential that all the species which are endangered or have some economic potential, should be brought under any of the Schedules from I to IV.

Since that time the draft of the assessments of NVSMs in the current document was forwarded to the Ministry soon after the C.A.M.P. workshop as additional support for the legislation. Despite this, and repeated requests to officers responsible for submission of taxa for amendment, the same situation prevails and “rats and mice” as well as fruit bats are still technically categorized as Vermin, Schedule V, which means they can be captured, killed, kept in captivity, individually or eradicated in masses.

A very few (less than 15 species) of the more than 70 species of rats and mice which inhabit India may be, in fact, “pests” but, not in all instances. Some taxa such as *Vandeleuria olaracea* live in urban, agricultural, and forest areas. While it is possible that they could be or become a nuisance in urban and agricultural areas, they also live as wild animals in forests.

Be that as it may, the All Indian Coordinated Rodent Control Project has classified 20 species as pests, which in urban and agricultural areas, indeed are potential vectors for disease and also consumers of both crop and stored grains. The anomaly could be addressed quite easily by listing the taxa enumerated by the nodal authority (AICRP) under Schedule V and appending a caveat “in urban and agricultural areas”, thus leaving the forest species potentially as protected as all animals under the Biodiversity Act, etc.

Table 21: NVSMs in the Indian Wildlife (Protection) Act.

Schedule I – Part I

Manis pentadactyla (Chinese Pangolin)
Ratufa macroura (Giant Squirrel)
Caprolagus hispidus (Hispid Hare)
Petinomys fuscocapillus (Small Travancore Flying Squirrel)

Schedule II – Part I

Hystrix hodgsoni (Himalayan Crestless Porcupine)
Atherurus macrourus assamensis (Bengal Porcupine)

Schedule II – Part II

Bulopetas (?)
Petaurista
Pelomys (?)
Eupetaurus
Ratufa macroura
Ratufa indica
Ratufa bicolor
Marmota bobak himalayana
Marmota caudata

Schedule IV

Funambulus pennanti (Five-striped palm Squirrel)
Black Naped, Common Indian, Desert, Himalayan mouse hare
Hemiechinus auritus (Hedgehog)
Hystrix indica (Indian Porcupine)
Voles

Schedule V

Mice & Rats

In the C.A.M.P. Workshop for Non-volant Small Mammals, a number of these species have been assessed as threatened according to IUCN Red List Criteria using Regional and National Guidelines. This circumstance makes a mockery of any conservation policy subscribed by the government and of the Biodiversity Act itself. Conservationists in other countries who are aware of the Vermin category and the number of such useful and important animals technically included in it, find it a most peculiar situation indeed.

Other South Asian countries should take note as well and consider that threatened species of non-volant small mammals are reviewed along with other factors for possible inclusion on their threat lists.

Summation

Finally, the South Asian NVSM C.A.M.P. Workshop provided an excellent opportunity to address the conservation needs for four entire groups of taxa and their habitat, as well as the resolution of important issues identified by most stakeholders. Research focus and management recommendations from the NVSM C.A.M.P. workshop will help conservation organizations, agencies and institutions nationally, regionally and internationally, to formulate and implement appropriate action on behalf of NVSM conservation. Funding agencies can use this Report as a reference for prioritizing proposals for maximum benefit of funds.

In addition to assessing all species of South Asian NVSMs individually, the workshop provided opportunities for NVSM biologists, foresters and other specialists within the South Asia region to meet and discuss matters of mutual concern.

As part of the mandate of the workshop, national assessments of all widely distributed NVSMs were made using the Regional Guidelines of the IUCN Red List Criteria (Version 3.0; IUCN, 2003). The assessments are compiled in Tables 4, 10-15.

Status of South Asian Non-volant Small Mammals

3. Additional Information

Captive Management

Captive breeding was not considered an important tool by the participants in the long-term conservation of NVSMs, not because it is not a viable or important tool, but for the following reasons: the lack of understanding of systematic, coordinated, conservation breeding as a viable tool by zoo managers in the region, the lack of interest in non-charismatic species by the established zoo community and its governors, the lack of confidence in captive facilities in the region, inadequate resource personnel, no coordinated breeding plans, limited taxonomic understanding and the personal belief of several field biologists that captive breeding is not worth the investment that could be better spent on wild habitat management. However, it was generally agreed that a person with more experience in this field and overall NVSM conservation breeding knowledge could make captive breeding recommendations after the workshop. Mike Jordan, who is the Curator of Mammals at Chester Zoo, who has several years of working on this group of mammals, also a participant of the NVSM C.A.M.P. workshop, sent in the following write-up on captive breeding recommendations.

Captive Breeding recommendations

The following recommendations are made with regard to the information presented at the C.A.M.P. and contained within the data sheets, combined with existing captive husbandry knowledge and experience. Recommendations generally are made on a 'South Asia wide' basis rather than making separate recommendations for each of the countries. Clearly there may be additional national priorities if they were assessed on a 'country by country' basis leading to additional conservation breeding recommendations.

Species are recommended primarily for two different strategies; firstly as an insurance population in cases where the distribution is extremely limited or fragmented and threatened. Under these circumstances, these insurance populations are required to safeguard the species from potential extinction, but are not recommended at this stage for conservation breeding and release. The second strategy is for recovery purposes involving conservation breeding and release. At this stage, while species may be recommended for a recovery programme, this is only to highlight the potential. Any release should only be as part of an integrated and coordinated programme fully discussed and approved with the appropriate authorities and IUCN.

Conservation breeding of small mammals is not widely practiced in South Asia and so it is generally recommended that model species are used to gain experience in the husbandry and management of small mammal conservation breeding programmes, which can be equally if not even more complex than programmes for large mammals. General experience should be improved by working with wild trapped stock of fairly common species such as *Rattus rattus*, *Tatera indica*, *Suncus murinus*, *Funambulus pennanti* / *F. palmarum*. In the early stages, it also may be necessary for assistance from outside the region to secure insurance populations of some of the high priority species.

Lagomorpha

***Caprolagus hispidus* [EN B2ab(ii,iii,iv)]**. Recommended for an *ex situ* programme for recovery purposes due to being a habitat specialist of highly fragmented habitat patches (Terai grassland) to which natural recolonisation may be unlikely. Captive husbandry is likely to be very difficult.

Rodentia

***Alticola albicauda* [DD].** Known from a single specimen only but likely to be highly threatened and recommended for an *ex situ* programme for insurance purposes should the opportunity arise to obtain stock of this species. *Alticola* spp. can be difficult to keep and breed in captivity although several species have been successfully kept.

***Biswamoyopterus biswasi* [CR B1ab(iii); D].** Highly recommended for an *ex situ* programme for insurance purposes due its very small population and highly restricted threatened habitat. Whilst some techniques for the husbandry of other large flying squirrels (*Petaurista*, *Trogopterus*) are known, they are generally very difficult species to maintain in captivity requiring a high level of skill and complex husbandry.

***Calomyscus hotsoni* [CR B1ab(ii,iii)].** Highly recommended for an urgent *ex situ* programme for insurance purposes and also potentially for a recovery programme following field work. This species is highly restricted and under habitat threat. Other members of the genus *Calomyscus* have been kept and bred successfully within captivity.

***Cremnomys elvira* [CR B1ab(ii,iii)+2ab(ii,iii)].** Highly recommended for an urgent *ex situ* programme for insurance purposes due to its very restricted distribution and threat to habitat. The captive husbandry of *Cremnomys* is unknown but may be similar to small *Rattus* for which techniques are well known.

***Funambulus layardi* [VU A3c+4c;B1ab(ii,iii)].** If the species is rediscovered from India then this population would be highly recommended for an *ex situ* programme for recovery purposes due to its taxonomic uniqueness from the Sri Lankan populations and highly restricted distribution. Captive husbandry of *Funambulus palmarum* and *F. pennanti* is known although can be difficult.

***Funambulus sublineatus* [VU B2ab(ii,iii,iv)].** Recommended for an *ex situ* programme for recovery purposes due to being a habitat specialist of highly fragmented habitat patches to which natural recolonisation may be unlikely. Captive husbandry of *Funambulus palmarum* and *F. pennanti* is known although can be difficult.

***Millardia kondana* [CR B1ab(iii)+2ab(iii)].** Highly recommended for an urgent *ex situ* programme for insurance purposes due to its very restricted distribution and threat to habitat. The captive husbandry of *Millardia* is unknown but may be similar to small *Rattus* for which techniques are well known.

***Mus famulus* [EN B1ab(ii,iii)+2ab(ii,iii)].** Recommended for an *ex situ* programme for recovery purposes due to being a habitat specialist of highly fragmented habitat patches (Shola grassland) to which natural recolonisation may be unlikely. Captive husbandry of other *Mus* spp. is well known.

***Mus fernandoni* [EN B1ab(ii,iii)+2ab(ii,iii)].** Recommended for an *ex situ* programme for insurance purposes due to the high fragmentation of populations and continuing habitat loss. Captive husbandry of other *Mus* is well known.

***Mus mayori* [EN B1ab(ii,iii)].** Recommended for an *ex situ* programme for insurance purposes due to the high fragmentation of populations and continuing habitat loss. Captive husbandry of other *Mus* spp. is well known.

***Rattus burrus* [EN B1ab(ii,iii)+2ab(ii,iii)].** Recommended for an *ex situ* programme for insurance purposes due to the highly restricted and fragmented distribution of this species. If circumstances on the Andaman and Nicobar Islands allow, this species may also be the subject of a recovery programme. Captive husbandry of other medium sized *Rattus* spp. is well known.

***Rattus palmarum* [CR B1ab(iii)].** Highly recommended for an urgent *ex situ* programme for insurance purposes due to the highly restricted distribution of the species and habitat threats. If circumstances on the Andaman and Nicobar Islands allowed this species may also be the subject of a recovery programme. Captive husbandry of other medium sized *Rattus* spp. is well known.

***Rattus ranjinae* [EN B1ab(ii,iii)+2ab(ii,iii)].** Highly recommended for an *ex situ* programme for insurance purposes due to the highly restricted distribution of this species and threats to habitat. Captive husbandry of some other *Rattus* spp. is well known.

***Rattus stoicus* [VU D2].** Highly recommended for an urgent *ex situ* programme for insurance purposes due to the highly restricted and fragmented distribution of populations of this species. Captive husbandry of other medium sized *Rattus* spp. is well known.

Soricomorpha

***Crocidura andamanensis* [CR B1ab(iii)].** Highly recommended for an *ex situ* programme for insurance purposes due to the highly restricted distribution of the species and habitat threats. If circumstances on the Andaman and Nicobar Islands allowed, this species may also be the subject of a recovery programme. Captive husbandry of shrews can be difficult although techniques are known for the successful long-term maintenance of several small *Crocidura* spp. in captivity.

***Crocidura hispida* [VU D2].** Highly recommended for an urgent *ex situ* programme for insurance purposes due to the highly restricted distribution of this species. Captive husbandry of shrews can be difficult although techniques are known for the successful long-term maintenance of several small *Crocidura* spp. in captivity.

***Crocidura jenkinsi* [CR B1ab(iii)].** Highly recommended for an *ex situ* programme for insurance purposes due to the highly restricted distribution of the species and habitat threats. If circumstances on the Andaman and Nicobar Islands allowed, this species may also be the subject of a recovery programme. Captive husbandry of shrews can be difficult although techniques are known for the successful long-term maintenance of several small *Crocidura* spp. in captivity.

***Crocidura nicobarica* [EN B1ab(iii)+2ab(iii)].** Recommended for an *ex situ* programme for insurance purposes due to its highly restricted and fragmented distribution and threats to habitats. Captive husbandry of shrews can be difficult although techniques are known for the successful long-term maintenance of several small *Crocidura* spp. in captivity.

Captive Management of Small Mammals in South Asia

Both the types of what we term as “small mammals”, volant or flying mammals and non-volant or non-flying in the world are kept in zoological gardens of the world. All play an immense role in ecosystems making them excellent animals for display. They are small and non-threatening to human beings, and they breed easily and quickly, all of which makes them good candidates for conservation breeding programmes.

Small mammals make up by far the greater number of all the mammals on earth with Rodentia as the largest Order. Rodents and shrews disperse seeds and pollen and control invertebrate populations. They also consume vegetation which clogs waterways and cause other problems and, most importantly, they are prey for a host of small and even large carnivores. Small mammals are highly speciose. Mammalian species of the world total about 4629. Of these, mammals which are not “small” are Cetacea (2%), Lagomorph (2%), Diprotodont (3%), Artiodactyla (5%), Primates (5%), Carnivora (6%), Others (6%). The rest are “small mammals” (bats (19%), rodents (43%) and insectivores (9%)) which equal 71% of total mammal diversity. Leaving small mammals out of zoo collections is almost as misleading as leaving out invertebrates!

Contrary to what people often think, small mammals are very much prone to extinction. According to the 2000 IUCN Red List, 74% of mammal species categorised as Extinct by IUCN excluding Extinct in the Wild consisted of Chiroptera (14%), Rodentia (53%) and Insectivora (7%). The other mammals categorised as Extinct are Diprotodont (7%), Artiodactyla (6%), Paramorph (4%), Carnivora (4%), Others (5%). An inordinate percentage of small mammal species are from a restricted range, which is a factor for the very high percentage of threatened species of Rodentia (29%), Insectivora (14%), Chiroptera (21%). The other threatened mammal orders are Didelphimorph (2%), Dasyuromorph (2%), Diprotodont (3%), Artiodactyla (6%), Primates (10%), Carnivora (6%).

The above figures are global but in tropical countries and regions there is a similar or even more dramatic disproportion of small mammals to other mammals. In South Asia, the proportion of small mammals to other mammals is well over 60%. These are dramatic figures, yet, small mammals are neglected compared to other mammals both by zoological gardens and by conservation scientists.

Zoos and scientists

The proportion of small mammals kept in zoos is highly disproportionate to their number, threat status and ecological importance according to ISIS, IZY, and other zoo records. As a result, zoo exhibits do not tell the true story of ecosystems or of biodiversity. What people see and the subliminal impression it imparts is far from reality. Small mammals represent a big gap in zoos' commitment to conservation. Zoos interested in biodiversity education perhaps should be aware of the subliminal message conveyed by a preponderance of large mammals and other charismatic species to the more numerous species.

Even scientists -- field biologists -- neglect small mammals as the comparatively small number of field studies and published papers indicate when compared to studies of charismatic large animals. This has been quantified in a scientific paper by Giovanni Amori, Chair of the IUCN SSC Rodent Specialist Group. His research revealed a very small number of field studies and a very small number of conservation-oriented published papers on small mammals, compared to charismatic large animals. This was particularly true in countries of high biodiversity and very particularly in Asia (Amori, 2000)!

As has been described earlier in this Report, in addition to many species having a limited range, the threats to small mammals are numerous, e.g., habitat loss, habitat destruction, alien invasive species (competition, predation), disease. Other threats are that forest rodents are mistaken for pest species, harassment by human beings, trapping for food and medical use and – more than any – ignorance of their immense value.

Therefore, zoos do not have a true picture of the conservation status of many species of small mammals in South Asia, because even scientists don't. In high biodiversity countries, scientific conservation studies on behalf of small mammals are considerably less than in other parts of the world. It is found that the number of academics working on conservation of small mammals is far fewer and they are isolated from one another individually and institutionally. The small amount of work which has been done often is not published.

Therefore, wildlife protective legislation in many tropical countries does not include most small mammals; government needs published scientific evidence to protect these controversial animals which are always considered pests and as threats themselves by the agriculture lobby. Governmental funding for conservation studies or threat assessments is not easily available for these groups.

In fact, interest is so low that it takes a focused non-traditional initiative to network, train and nurture sufficient small mammal biologists so that a community of scientific workers for small mammals will emerge and work together effectively. Two such initiatives are the Rodent Network and Bat Network of the Zoo Outreach Organisation and CBSG/South Asia, more specifically the Chiroptera Conservation and Information Network of South Asia CCINSA and the Rodent, Insectivore, Lagomorph, Scandent Conservation and Information Network of South Asia RILSCINSA.

Zoo Conservation partnerships

Zoo and other conservation partnerships can help these network make a difference for the two largest orders of mammals in South Asia, Chiroptera and Rodentia. Zoos can fulfill their commitment to conservation of small mammals first by educating the public, then by assisting the field community and

finally when information is organized, by taking up breeding programmes for threatened species. Already, zoos, conservation and animal welfare organizations from temperate countries have adopted some of these projects and assist in many ways, to wit :

1. Providing technical support: Dr. Paul Racey, Regius Professor of Natural History, Aberdeen University, Chair, IUCN SSC Chiroptera SG; Giovanni Amori, Chair, IUCN SSC Rodent SG, Mike Jordan, Curator of Mammals, Chester Zoo and Chair, IUCN SSC Reintroduction SG Europe and North Asia & Member, Rodent SG, Insectivore SG; Werner Haberl, Chair, IUCN SSC Insectivore SG; Andrew Smith, Chair, IUCN SSC Lagomorpha SG, Conservation Breeding SG, and Reintroduction SG.

2. Contributing funds: for networks, training, public awareness, lobbying, conservation workshops such as C.A.M.P./GMAs, field surveys and for field techniques, taxonomy and other conservation training: Chester Zoo, Knowsley Safari Park, Columbus Zoo, Riverbanks Zoo, Bat Conservation International, Marwell Zoological Park, Miami Metro Zoo, Cleveland Zoological Society.

3. Hosting South Asian professionals to participate as trainees in their projects (ex. The Chester Zoo Harvest Mouse programme)

4. Contributing time of staff: Chester Zoo and Aberdeen University.

Some of the major projects which relate to zoos have been:

1. Conservation Workshops: C.A.M.P. Workshop for South Asian Chiroptera – 2002; C.A.M.P. Workshop for South Asian Non-volant Mammals – 2004; Field Techniques Training 2002, 2003, 2004, 2005, Reintroduction and Conservation Welfare Training. Zoos can use the C.A.M.P. output for prioritising species for conservation breeding and the Reintroduction and Conservation Welfare training for exhibiting small mammals and later possibly reintroducing them.

2. Education, communication, lobbying:

- Teaching scientists to teach kids
- Forest officers education project
- Preparation and distribution of educational materials for zoos, schools, conservation NGO's
- Lobbying to have Rodents (mice and rats) removed from negative list of Wildlife Protection Act

3. Checklists on the zoo premises: Some zoos have a wide variety of rodents and insectivores due to their highly vegetated zoo campus and food attraction from the spilled and stored foodstuffs for other animals.

4. Networking: Some zoo personnel are members of our taxon networks and all are welcome.

Thus, it is possible to make a big change in neglected faunal groups with zoo conservation partnerships as demonstrated by the projects involving small mammals in South Asia. The Knowsley Safari Park,

Liverpool has supported such activities on behalf of Rodentia since 2001 and the Chester Zoo has supported Rodentia and Insectivora by contributing staff time to training workshops. Both have contributed generously to the support of the Conservation Breeding Specialist Group, South Asia Network which coordinates these taxon conservation networks. The commitment of these zoos has made it possible to conduct C.A.M.P.s/Red Listing exercises, field training, lobbying and public education. It is a model of zoo cooperation for *in situ* conservation at a very basic level.

Small Mammal Zoo Conservation and Management

Currently, captive management of Small Mammals is not particularly well-organised. Currently in India, where there are 164 zoos, mini-zoos, and deer parks, there are only 9.14.1.24 reported squirrels of three subspecies; an unnecessary 68.54.72.194 porcupines of three subspecies, and a possibly hopeful population of 9.4.6.19 Himalayan Marmots, *Marmota bobak*, at Calcutta Zoo (Table 22). There are even fewer in the other South Asian countries (Table 23).

The only significant populations in numbers are the common Porcupine, *Hystrix indica*, which exists in good numbers and a reasonable sex ratio in 24 institutions. Another species, Bengal Porcupine, *Atherurus macrourus assamensis*, may be also feasible for a conservation breeding with a relatively small number (10.9.24.43), reasonable sex ratio but no studbook. There are single or single sexed animals in some situations as with the Mysore Zoo's single female Giant Grizzled Squirrel, *Ratufa macroura* and others.

Table 22. NVSMs in Indian zoological gardens (from CZA 2002-2003 database)

Species	Zoo	Male	Female	Unknown	Total
GIANT SQUIRREL					
Squirrel Giant Grizzled, <i>Ratufa macroura</i>					
	Sri Chamarajendra Zoological Gardens	0	1	0	1
Squirrel Giant Malabar / Indian, <i>Ratufa indica</i>					
	Alipore Zoological Garden	0	1	0	1
	Arignar Anna Zoological Park	1	1	0	2
	Bannerghatta Natl Pk & Zoological Garden	0	3	0	3
	Jaipur Zoo	1	0	0	1
	Lucknow Zoological Park	1	3	0	4
	Marble Palace Zoo	2	2	0	4
	NBC Pranisanghalaya	1	0	0	1
	Sanjay Gandhi Biological Park	1	1	0	2
	Thiruvananthapuram Zoo	0	1	0	1
	Tiger & Lion Safari, Thyarekoppa	1	1	0	2
Squirrel Malayan, <i>Ratufa bicolor</i>					
	Kanpur Zoological Park	1	0	1	2
PORCUPINE					
Porcupine Bengal, <i>Atherurus macrourus assamensis</i>					
	Arignar Anna Zoological Park	3	3	2	8
	Indroda Nature Park	0	0	2	2
	Kamla Nehru Zoological Garden	0	0	9	9
	Kanpur Zoological Park	1	2	0	3
	Marble Palace Zoo	1	1	0	2
	Nandankanan Biological Park	0	1	0	1
	National Zoological Park	2	0	0	2
	Sakkarbaug Zoo	1	1	0	2
	State Museum & Zoo	1	0	0	1
	Tata Steel Zoological Park	1	1	0	2
	Udaipur Zoo	0	0	11	11
Porcupine Brush-tailed/Bengal, <i>Atherurus macrourus</i>					
	Alipore Zoological Garden	0	0	2	2
	Assam State Zoo Cum Botanical Garden	2	1	0	3
	Kamla Nehru Zoological Garden	1	0	0	1
Porcupine Himalayan Crestless, <i>Hystrix hodgsoni</i>					
	Assam State Zoo Cum Botanical Garden	1	0	0	1
Porcupine Indian, <i>Hystrix indica</i>					
	Assam State Zoo Cum Botanical Garden	1	0	0	1
	Aurangabad Municipal Zoo	3	3	0	6
	Bhagwan Birsa Biological Park	0	0	2	2
	Bondla Zoo	2	2	0	4
	Gandhi Zoological Park	1	1	0	2
	Indira Gandhi Zoological Park	3	3	0	6
	Itanagar Biological Park	1	1	2	4
	Jaipur Zoo	1	1	4	6
	Kamla Nehru Prani Sanghralalay Zoo	5	4	1	10
	Lucknow Zoological Park	0	0	1	1
	Mahendra Chaudhury Zoological Park	0	0	10	10
	Nandankanan Biological Park	1	1	0	2

Species	Zoo	Male	Female	Unknown	Total
	Nehru Zoological Park	3	1	0	4
	Piliilkula Wildlife Safari	4	3	0	7
	Rajiv Gandhi Zoological Park	0	0	5	5
	Rajkot Municipal Corporation Zoo	1	0	0	1
	Sakkarbaug Zoo	2	1	0	3
	Sanjay Gandhi Biological Park	4	6	0	10
	Sayaji Baug Zoo	3	4	3	10
	Sepahijala Zoological Park	1	2	0	3
	Sri Chamarajendra Zoological Gardens	0	0	1	1
	Sri Venkateswara Zoological Park	0	0	6	6
	Sundervan Nature Discovery Centre	1	1	1	3
	Thiruvananthapuram Zoo	4	3	0	7
	V.O.C. Park Mini Zoo	1	0	0	1
	Veer mata Jijabai Bhosale Udyan & Zoo	5	3	0	8
Porcupine (Albino), <i>Hystrix indica</i>					
	Bannerghatta Natl Pk & Zoological Garden	5	3	2	10
	Jawaharlal Nehru Biological Park	1	1	0	2
	Manipur Zoological Garden	0	0	6	6
	Tiger & Lion Safari, Thyarekoppa	0	0	2	2
	Veer mata Jijabai Bhosale Udyan & Zoo	1	0	0	1
MARMOT					
Marmot Himalayan, <i>Marmota himalayana</i>					
	Alipore Zoological Garden	9	4	6	19
PANGOLIN					
Indian Pangolin, <i>Manis crassicaudata</i>					
	Sepahijala Zoological Park	1	0	0	1
	Nandankanan Biological Park	1	4	0	5
	Sri Chamarajendra Zoological Gardens	0	0	1	1

Table 23. NVSMs in South Asian zoological gardens

Country	Common name, Scientific name Zoo	M	F	U	TI
Pakistan					
	Indian Porcupine, <i>Hystrix indica</i>				
	Bahawalpur Zoo	3	4	0	7
	Karachi Zoo	7	8	2	17
	Lahore Zoo	0	0	4	4
	Landhi Korangi Zoo	2	2	0	4
Nepal					
	Flying Squirrel, <i>Petaurista petaurista</i>				
	Central Zoo	1	0	0	1
	Common Squirrel, <i>Funambulus palmarum</i>				
	Central Zoo	0	1	0	1
	Indian Giant Squirrel, <i>Ratufa indica</i>				
	Central Zoo	0	1	0	1
	Indian Porcupine, <i>Hystrix indica</i>				
	Central Zoo	2	0	0	2
Bangladesh					
	Five Striped palm Squirrel, <i>Funambulus pennanti</i>				
	Dhaka Zoo	0	0	4	4
	Himalayan Squirrel, <i>Callosciurus pygerythrus</i>				
	Dhaka Zoo	0	0	2	2
	Indian Porcupine, <i>Hystrix indica</i>				
	Chittagong Zoo	2	2	0	4
	Comilla Zoo	0	0	1	1
	Dhaka Zoo	1	2	3	6
	Rajshahi Zoo	0	0	4	4
	Rangpur Zoo	0	0	3	3
	Malayan Giant Squirrel, <i>Ratufa bicolor</i>				
	Dhaka Zoo	2	0	0	2
Sri Lanka					
	Flying Squirrel, <i>Petaurista petaurista</i>				
	Dehiwala Zoo	1	0	0	1
	Giant Squirrel, <i>Ratufa indica</i>				
	Dehiwala Zoo	3	4	0	7

Education for Small Mammal C.A.M.P.

The Education Working Group of the Non-volant Small Mammal C.A.M.P. suggested a programme of educational material to be created at three levels, e.g. policy makers, laypersons, and children. It was also suggested that there be a programme of educator-training for trainers so that the techniques can cascade down to teachers, teachers-aides, teacher-trainees and NGOs. It was confirmed that many of the researchers themselves were interested in public education and in fact, many research grants currently have to include an education component. The importance of incorporating ecosystem based concepts to link relationships between species including the importance of small mammals as prey to large mammals, which are more successful in attracting positive attention from the public.

Three Tiers Target Groups for Post C.A.M.P. Education / Awareness / Action Programmes		
Level 1- Policy/ Professional	Policy-makers, bureaucrats, professional foresters, wildlife officials, wildlife biologists, academics	C.A.M.P. REPORT – variants, from complete report for scientists to salient points for policy makers
Level 2 – Layman	Common man, from both urban and rural areas, educated and non-educated, English speaking & vernacular	C.A.M.P. information attractively typeset and formulated appropriately for general reading or for use in group activities, Material on special issues in vernacular
Level 3 – Students	Young people from 6 – 16	C.A.M.P. output information of interest to youngsters and made palatable for different ages. Packets to use in zoo, NGOs, wildlife areas, school, and museums.

The Working Group suggested that the networks covering bats and rodents, insectivores, etc. could be linked under a “bats and rats” banner so as to combine education resources effectively and make the programme more attractive. The Working Group confirmed that the educational packets developed for Chiroptera were an ideal model for creating similar non-volant small mammal material.

Public education also was one of the most frequently suggested recommendation under Management Recommendations in the species by species Taxon Data Sheets of the Non-volant Small Mammal C.A.M.P. workshop

Zoo Outreach Organisation and CBSG, South Asia, primary catalysts of the NVSM C.A.M.P. workshop took up the task of initiating and coordinating an education programme which included both Volant and non-volant small mammals. The education programme was launched with the publication of an attractive poster in April 2004 and given another big push with the development of a packet which contained non-volant small mammal materials for Indian Wildlife Week, October 1-7, 2004. Throughout the year these packets and posters were offered to a very large number of groups who conduct informal education throughout the year for one reason or another, such as for “special days” as

World Animal Day, Earth Day, World Environment Day, Animal Welfare Fortnightly, etc. The materials were structured so that the education programme could begin even before the C.A.M.P. Report came out, as it is known that this is a long process to publish the final Report.

Normally there are three stages of an education programme following a C.A.M.P. workshop just as there are three target groups. The first stage is the easiest as it involves an easily approachable target group, children. It is also easy because there are plenty of would-be educators who want new material to educate children in various situations, zoo visits, functions at civic groups, disabled childrens groups, school sessions, special days, etc.

The second stage and third stage both involve target groups for which we need the final C.A.M.P. report, that is the layman, who needs a summary of the report to be appraised fully of the points required for his involvement, and the policy makers, politicians, foresters, etc. who should be approached only when there is a full Report ready. Therefore our education programme for non-volant small mammals I stage and III tier of target groups worked effectively. Now that the Report is published the I and II tiers and II and III stages will be addressed with the Report and Summary in hand.

Small Mammal Education Project for South Asia

The South Asian Small Mammal Education Project began a full year before this Report was published. The programme was sponsored by Knowsley Safari Park and Chester Zoo. Following the lead of the Education Working Group at the C.A.M.P. ZOO/CBSG, South Asia developed and distributed posters, stickers and booklets masks and other items in education packets about volant and non-volant small mammals to various zoos, NGOs and other interested and concerned individuals, institutions, and forest departments. The packets are useful in conducting nature camps, class lessons, public functions, and other types of informal educational activities and programmes. We had already distributed material on volant small mammals for Animal Welfare Fortnight, 2004 but had also included rodents in a brochure produced on welfare of

3 Stages for Post-C.A.M.P. Education / Awareness / Action Programmes		
Stage 1	1.Zoos, museums, conservation NGO's, wildlife agencies, schools, etc. 2.Field biologists and policy makers	• Basic programme materials ... theme based for Bats, Primates, Amphibians, Rodents, Reptiles ... later invertebrates. • Report – full
Stage 2	1.Layman (educated in English. 2.Taxon based “Clubs” 3.Foresters in P.A.s	C.A.M.P. summaries Club identity materials; projects, games, etc.
Stage 3	1.Layman (uneducated; non-literate) 2.Layman (educated, non-English speaking	Villagers Local elected officials Politicians from scheduled castes

animals generally. These were distributed to many dozens of zoos and welfare NGOs for this event. By the time Earth Day and World Environment Day came around we had developed a very attractive colour poster featuring bats and rodents in a forest setting with a great deal of information on the back of the poster, placed upwards so that the poster could be attached to a bulletin board and lifted for easy reading. Several thousands of these posters were distributed to zoos and other organizations for these two environmental special days. Wildlife Week is the biggest occasion in India in which zoos, conservation organisations, and forest departments conduct events and functions and like to have a theme and a focus for their activities. Zoo Outreach Organisation packets have proven very popular and for 2004 Wildlife Week we developed a special packet featuring rodents and bats. For the surrounding South Asian countries, packets are given to visiting biologists to carry back and also taken to Nepal, Pakistan, Bangladesh and Sri Lanka where zoo educator training and teacher training course are conducted.

The main point of the programme is to take up non-volant small mammals to give them an image other than either pest or cute little creature, two extremes which do not do justice to their role in the ecosystem and their great utility and complexity.

The packets contain a variety of material which lend themselves to use with a group of children interacting together using items in the packet. In the rodent packet it included two "cute" rodent and insectivore face masks which were designed both for attractiveness and for realism. We avoided the temptation to use the fussy art work of rodent faces which were readily available and with great difficulty designed realistic rat and shrew faces which could be used as masks.

The packet also contained a bat /rodent illustrated wrist bracelet, small and simple handout about rodents and a booklet called Bats & Rats. A certificate of participation and promise to protect threatened rodents and bats was included for kids to sign and these packets were offered widely to zoos, NGOs and primate biologists who wished to conduct programmes. Because it is difficult for people in this region to take the protection of rodents and shrews very seriously, the booklet was designed for humour and attractiveness and developing a positive concept of rodents. Unfortunately humour is sometimes too difficult to include in science with descending into absolute doggerel, such as this poem on the cover :

A bat and a rat sat in a hat
Moaning of their unpopularity.
"I scatter seeds and pollen," said the bat
"I feed small carnivores," said the rat !

Bat and rat of an unfortunate jaat
Heroes of our biodiversity
Along came a gnat who spat on the bat
While a cat got fat on the rat.

O bats and rats ! That's that !

Yet, some of the material presented was very serious in conveying the concept that small mammals make up an enormous component of mammal diversity yet very few of these large numbers are actually the pests which most people, who are more familiar with house mice and bats dropping guano from a tree in the park, imagine.

A booklet of guidelines for using the packets was issued to all organisations and institutions which agreed to run programmes, describing how to use every item effectively in a group situation with games, dramas, marches and other activity-based learning tools.

Some of the items were targeted for adults rather than children and focused on issues discussed in the C.A.M.P.

There are other items under production. The Summary is one of the major educational tools as it will be very widely circulated to and important groups of policy makers, professionals foresters, conservation organisations, wildlife institutions and other academics numbering over 1000 individuals in India alone. Sufficient numbers of these summaries will be produced so that rodent biologists can order them in dozens and even hundreds when they want to use them for education in their own region.

Table of Special Days for public education

January	14-30 th	Animal Welfare Fortnight
March	21 st	World Forestry Day
	22 nd	World Water Day
April	22 nd	World Earth Day/ Water resources Day
June	5 th	World Environment Day
	I Week	International Volunteer Week
		Vanamahotsava First Day
September	16-18 th	Clean up the World campaign
	27 th	World Tourism Day
October	5 th	World Animal Day
	I Week	Wildlife Week
November	16 th	World Food Day
	1 st	World Ecology Week
	19 th -21 st	National Environment Week
	21 st	WWF Conservation Day
December	24 th	World Biodiversity Conservation Day
	2 nd	Indian Zoo Week

Some other days:

Animal birthdays

Opening ceremonies for new enclosures

Release of animals into new enclosures

Inauguration of new programme for the zoo (renovation - I phase).

NVSMs in South Asian Culture

Rats, mice, shrews – fast-moving, furry, tiny brown mammals are, in western culture, vehicles for jokes (like the pretty female standing on a chair screaming in fear of a tiny mouse), or cartoons (such as Mickey Mouse and other mouse stars in funny books or films, or danger (such as carriers of bubonic plague or other horrid diseases and fodder for fatal traps or poison). The same rat, mouse and shrew in eastern culture, at least where Lord Ganapathy is loved and worshipped, is a vehicle for the god himself. In eastern culture, traditional Hindus, Buddhists, Jains are all admirably reticent to kill any living creature. This cultural convention has been transcended by various governments in South Asian countries which have set up mammoth networks of well-funded rodent control centers which conduct studies of rodents to determine which are pests and how best to control them. They have made an official list of pest species which are, at best, only sometimes pests in specific areas with conspecifics in forests – wild animals – which also come under negative protection under legislation.

Be that as it may, one factor which is responsible for our having any animals at all left in the region is the religious and cultural traditions of ahimsa. The fact that you can still find live-trap wooden rat traps in the market indicates that western culture has not completely taken over as villagers in India and perhaps some other South Asian countries as well trap the rats which come home and let them go outside away from the house instead of killing them.

Rodents are to some villagers and tribal people what hares are to rural folks of America and Europe – something to catch for food. Irulas are known for catching snakes and rats – the Indian gerbil being a favourite for barbeques. There is a tribe from Bihar, India and Nepal called “Mushahar” who enhance their poor diet by eating rats. Mushahar means “rat food” or “mouse food”.

In Hindu belief rats are associated with many good qualities, such as foresight and prudence. They are associated with darkness -- nighttime, not evil -- perhaps because they can be heard scurrying around at night. They are also said to have a keen sense of smell. The name Mooshika has been translated as “little hoarder”. In other stories the name refers to a very big rat ! Alternate names for the transport of Ganesh are Mooshikam, Minjur or Akhu.

Lord Ganesh and his rat, mouse or shrew (all forms are used in the hundreds and thousands of drawings, painting, statuary, and illustrations of the Lord) are so old and so pervasive in South Asian culture that almost anything you read about him has to be accepted as true. Stories handed down over centuries and ages take on the personalities of their tellers, and who is to say if one version is more true than another.

How a lowly rodent came to share the glory of such a popular God is not known. Some have surmised that it was because rats were, in those days, appreciated animals. Who knows ? But here are some characteristics of rats which have been suggested as reasons why and how Ganesh was blessed with a rodent for a steed:

- Here is only one creature that can reach anywhere; it knows no obstacles. It is the mouse and so rides Ganesh who destroys obstacles, on a mouse.
- Rats generally succeed in gnawing their way through every obstruction, so Ganesh’s rat symbolizes his nature of destroying every obstacle.

- The combination of Ganesh's elephant head and a rapidly moving rat as a vehicle represents wisdom, intelligence, and presence of mind.
- The mouse is the chosen mount of Lord Ganesh to carry the divine light into the darkest corners of the world and the narrowest of human hearts.

One could go on and on and much of the world does! Images of Ganesh abound. Ganesh stands, sits, reclines, dances (alone, with ladies, with animals). A look in the sale advertisements of Ganesh statues demonstrates how Ganesh worship thrives upon the human imagination: one particularly charming image is of Ganesh dancing to the music of a rat band on back of his rat vehicle with a three-rat ensemble and four rats in the audience clearly having a great time.

All kinds of animal legends, moral tales, Aesops fables, Panchatantra stories, yarns, and chronicles feature rats, mice and shrews ... a rat that became so fat he choked the cat, a transformed mouse seeks a bridegroom, a crow rat discourse, a rat king saves an elephant ... examples are almost infinite.

Rodents also have a dark side – criminals, mafia types, and other bad elements are sometimes represented by a rodent. We call an individual a “rat” when we feel he is a bad person, a mouse when we think him too shy and cowardly, a shrew if he is cheap or stingy. At the same time we ask children to be “quiet as a mouse” and “quick, like a rat”.

Clearly the rodents are well represented in folklore and everyday life. Nature seems to favour rodents ... that is because we need them. Rodents play a crucial role in the ecosystem ... they are very essential as they sustain predators of various sizes and kinds and even provide protein for human beings in some communities (even tigers have been known to eat rats when times are tough in the forest). They also disperse seeds creating new growth and spread of vegetation; moreover, in consuming vegetation they prevent congestion of crucial areas such as waterways. Some species predate on insects that may be harmful to crops and to human well-being. Obviously NVSMs are not a group of creatures we want to eliminate in most situations, nor to nurture in others. Extremes and false beliefs need to be eliminated, not NVSMs!

Special Issue Working Groups

It is a tradition at C.A.M.P. Workshops to form “Special Issue” Working Groups after Taxon Data Sheets and C.A.M.P. Data Entry Programme information have been filled in. Discussions which take place between participants to decide on a correct, consensual and integrated response for every taxon for the region inevitably point to special issues with regard to the problems and requirements of taxa. Also in the Taxon Data Sheets requests for recommendations, certain of those listed will have been suggested for almost every taxon and require a group discussion on ways of implementing action. In this way the output from Special Issue Working Groups could be called small “Action Plans”. Special Issue Working Groups were formed in this workshop also on the following subjects. The output of summarised recommendations along with the names of Working Group members follows.

Research and Field studies Working Group

Members: Sampath Goonatilake, A.K. Chakravarthy, Shomita Mujkherjee, Shomen Mukherji, Meena Venkatraman, Joya Thapa, Wes Sechrest, Binu Priya

General research recommendations

1. Protocols are required for applying for and for distributing funds, for research itself and for standards of research.
2. Priorities for research need to be listed.
3. The authenticity of biological information sheets requires that strong support is needed for any report/record.
4. Data sheets are available with RILSCINSA and researchers but it was suggested that these data sheets be standardised by improve existing ones. A good model is available with Sampath Goonatilake, Sri Lanka.

Referees for screening proposals should insure :

1. Areas for initiating research should be prioritised.
2. Taxon-specific surveys based on Data deficient species from CAMP should be a priority.
3. There should be greater emphasis on ecology and population trend surveys rather than simple inventories.
4. There should be more emphasis on utilization aspect of taxa, e.g. Giant squirrels
5. More attention should be given to the application of research to conservation
6. Studies should be undertaken to reinforce and interpret knowledge of the ecological importance of rodents, particularly to decision makers, pest control centres, and the general public.
7. Threats have been identified and need to be taken into consideration when screening proposal.
8. Request Zoo Outreach Organisation to supply whatever information exists on Data Deficient species
9. Globally restricted Data Deficient species should be given a higher priority over widespread species
10. As some species occur in both natural and cultivated areas, a comparison of their ecologies in these different habitats would be useful and may be suggested by individuals in a position to guide students.

Research Methods

1. Genetic studies (populations and taxonomy) for restricted species and disjunct populations should be undertaken.

2. There is a need for training in taking sample collections
3. Identification protocols need to be strengthened including standardization of keys
4. Long term studies for CR and EN species should be done. A method of prioritising studies should be long term studies for CR and EN species and quick surveys for DD species sufficient to permit them to be assessed and categorised.
5. Local universities throughout the country should be involved in NVSM conservation research.
6. Referees for screening proposals should be identified.

Specific Research recommendations of the group

Geographical areas priorities for research were North-eastern India, Jammu & Kashmir, Western Ghats, Sri Lanka – central montane region

Recommendations were made for specific research activities for the following Data Deficient species. Of particular interest are: *Eupetaraus cinereus*, *Diomys crumpi*, *Alticola albicauda*, *Alticola blandfordi*, *Calomyscus hotsoni*, *Crocidura hispida*, *Crocidura nicobarica*

Recommendations from the groups that CR and EN species in Andamans or Nicobar should be prioritised, are particularly relevant now that the tsunami has effectively destroyed some islands which were thought to be the sole habitat for some species. *Crocidura andamensis* and *Crocidura jenkinsi* were suggested by the Working Group at the time of the C.A.M.P.

Recommendations were made that Sri Lankan species *Solisorex pearsoni*, *Suncus dayi*, *Suncus fellows-gordini* and *Suncus zeylanicus* be prioritised for research.

Recommendations for Population and threats research included *Suncus ceylonicus*, *Mus fernandoni*, *Feroculus feroculus*, *Suncus montanus*, *Mus mayori*, *Rattus montanus*, *Srilankamys ohienis*, *Vandeleuria nolthenii*, *Funambulus layardi*, *Petinomys fuscopapillus*.

Several other species were prioritised for different conservation activities as well.

Taxonomy Working Group

Members: T.P. Bhattacharyya, S.U. Sarker, S.S. Talmale, S.S. Saha, Y.P. Sinha, C. Srinivasulu

1. Capacity Building in taxonomy for NVSM's is urgently required.
 - a. An authentic centre for identification should be identified
 - b. Parataxonomy should be strengthened at least as regards species level
 - c. Better utilisation of experts should be organised, such as enlisting resource persons interested in small mammal taxonomy.
2. Application of advanced technology such as DNA fingerprinting and other biotechnical methods for identification of taxa should be done.
 - a. Taxon with specific status complications need to be assisted by advance techniques as the need may call for in collaboration with suitable institutions which are empowered for this work.

- b. Those taxa with conflicting taxonomic status opinions and also Data Deficient species should be prioritised for work.
3. Keys, identification and accessibility
- a. There should be standardisation of a workable key for identifying
 - a. Museum specimens
 - b. Live specimens in field
 - b. Compilation of Atlas' (each order separately) drawings of key identification characters to aid identifications
 - c. Establishment of retrievable database on valid taxon, synonyms, subspecies, museum collection catalogues, in collaboration with concerned authorities of countries of South Asia
4. Legislation should be passed so that it is mandatory
- a. that a fair share of voucher specimens of any taxa collected from any region in south Asia be deposited in the national zoological collection of the concerned country and mention may be made in publications.
 - b. that any fresh / currently procured collection based on which revisionary / redescription / new record of any taxa in south Asia has been made should also be deposited in the national zoological collection of the concerned country and mention may be made in publications.
 - c. it will be helpful if individuals publishing such information would forward the information or publication to RILSCINSA for record also.

RILSCINSA Networking, Training and Education Working Group.

Members : Giovanni Amori, P.O. Nameer, B.A. Daniel, Jonathan Bielby, P. Padmanabhan, Sanjay Molur, Mike Jordan, Ben Collen

1. IUCN SSC South Asian Action Plans for Rodents, Insectivores, Lagomorphs

Can be prepared by the regional network and specialist group members. These should be based on Specialist Groups therefore a separate Action for Rodents, for Insectivores and for Lagomorphs needs to be done. It may be initially web based and if funding can be obtained, a printed document could be produced. It should be technical but also available and understandable to implementing agencies.

(Note: after review of the Report it was felt that there may not be enough information on species to do a traditional Action Plan on the line of SSC IUCN. Possibly such Action Plans could be made by locality wise or by geographic areas, or by taxon groups rather than species by species).

A small group of coordinators (steering committee) should be established by RILSCINSA. The general IUCN guidelines on Action Plan formation can be used which has been provided by Giovanni Amori. Sujit Chakraborty, Scientific Chair, RILSCINSA will Chair the committee and it will be coordinated by Sanjay Molur.

A suggested outline was :

- i. Introduction

- ii. Chapters on each country
- iii. Taxonomic accounts (including subspecies) -- geographic or group-wise accounts may be considered
- iv. Conservation Priorities
- v. References & Appendices

Time frame : Manuscript of Chapters and endemic species accounts to be completed by end 2005, for web publication in 2006, then non-endemic species accounts completed during 2006.

2. Training

- i. A local Indian team composed of senior researchers and already trained personal can be formed to communicate field techniques training to different groups in different states in India. Requests have come from some localities such as Bangalore/Mandhya. There also could be a prioritisation of important areas. It may be possible to link in with other events. The training could be for just 2 or 3 days each event. RILSCINSA will provide a training fund for basic travel and accomodation of trainers, which will differ with each training so that all get a chance to train and no one person is unduly burdened. For these local course, local organisers will have to organise transport and local accomodation as funds are not sufficient for this.
- ii. Field studies could be organised which are conducted as a training exercise, with an actual survey to inventory an area, or a selection of species and their biology. Use of reserve forest and private forest rather than protected areas would facilitate the work. Conducting a combined small mammal survey (Chiroptera and NVSMs would be preferable. The study/survey would have to be 1 – 2 weeks minimum).
- iii. A research form should be compiled that people complete to add to database as a way of capturing notes and observations that would otherwise go unmissed. There is potential to publish those as notes in the *Zoos' Print Journal* and as informational briefs in *Rat-a-Tattle*. Format based on the C.A.M.P. datasheet will be explored and circulated for comment. There may be a need for a more technical form to record standardised information from trapped specimens to assist in accurate identification, such as plantar pads, standard measurements, etc.

3. Education - Public

Three tiers of target groups have been listed for education.

- i. Policy makers and academics : civil servants, forestry officials, college and university personnel, graduate students, etc.
- ii. Lay persons, e.g. adults both city and country
- iii. Young children – schools

A programme of education training for trainers was recommended. Training of teachers is particularly economical as every teacher will teach hundreds of students. Incorporate ecosystem-based concepts that link together the relationships between species such as the relationship between predator and prey. Link together the networks of the Chiroptera and Rodent education networks under a 'Rats 'n Bats' banner to effectively combine educational resources. The Chiroptera network education packets are an ideal model for using to create similar small mammal material

Education - Public and Academic

Discussion of a small booklet consisting of a line drawing of each species, and a description of their biology based on the taxon data sheets for use by educators. A more technical booklet on small mammals would also be useful. Instead of a printed field guide, a field “notebook” was proposed which is simple and cheap and could incorporate the growing pieces of detailed accurate information on each species which is being contributed by RILSCINSA field biologists.

Discussion of computer key for common species that exists for some groups already (birds, trees, insects), available on CD and website. A similar module for bats and small mammals could be done by the same institution, via A.K.Chakravorty.

Type specimens of South Asian small mammals are mostly found in a few museums outside this region, which makes it difficult to confirm the taxonomy of many species. It was proposed to visit these museums and straighten out the taxonomic questions for South Asian small mammals. As this will be an expensive but highly useful exercise, it was suggested that one could apply for a Darwin Initiative grant to complete this project. This will be done in collaboration with Chester Zoo, U.K. with help from Mike Jordan.

The C.A.M.P. Process

The Conservation Assessment and Management Plan (C.A.M.P.) Workshop is a “process” which was designed and developed by the Late Dr. Ulysses S. Seal, then Chairman of the IUCN SSC Conservation Breeding Specialist Group (CBSG) and Dr. Thomas J. Foose, initially to assist zoos to prioritise species for conservation breeding. Over the years, and as a result of the careful manner in which the workshops have been planned and conducted, C.A.M.P. workshops have evolved and many improvements from workshops conducted all over the world incorporated into the process. Now C.A.M.P.s are increasingly used as a means of assisting regional and national biodiversity planning and for contributing far greater numbers of species to the Red List of Threatened Species. During this time C.A.M.P.s have continued to evolve, encompassing more recent scientific methodologies related to the requirements of the Convention on Biodiversity. C.A.M.P. Workshop Reports make available the most current information from the most recent fieldwork, and thus provide crucial direction for strategic management of threatened taxa in larger taxonomic groups.

Because the output of C.A.M.P. workshops affects wildlife policy and management through the IUCN Red List and wildlife legislation which takes its cue from the Red List, the social and scientific principles and methods established by the Conservation Breeding Specialist Group, and which are in a continuous process of evolution and improvement, should be followed meticulously. C.A.M.P. workshops have been designed to collect the knowledge of many stakeholders and to reflect the result of their combined experience and opinion after discussion. The IUCN Red List Criteria developed by IUCN SSC is an elegant system for assessing species across taxonomic orders but it is only as good as the rigour and information used to apply the Criteria and thus derive a Category.

Thus, the Taxon Data Sheet, which organises and summarises information needed to derive a status, provides a logical framework for discussion, thus providing a uniform standard and maintaining scientific integrity.

A C.A.M.P. Workshop brings together a broad spectrum of experts and stakeholders consisting of wildlife managers, biologists, representatives of the academic community or private sector, researchers, government officials and captive managers to pull together all pertinent information necessary to:

- a. evaluate the current status of populations and habitats in the wild and in captivity;
- b. assess the degree of threat using IUCN Red List Criteria;
- c. make recommendations for intensive management action; and
- d. make recommendations for specific conservation-oriented research and education.

A C.A.M.P. Workshop is intensive and interactive which facilitates objective and systematic discussion of research and management actions needed for species conservation, both *in situ* and *ex situ*. Workshop participants assess the risks to the target group of taxa and formulate recommendations for action using a Taxon Data Sheet. The Taxon Data Sheet serves as a compendium of the data collected on the status of population and its habitat in the wild as well as recommendations for intensive conservation action. Taxon Data Sheets also provide documentation of the reasoning behind recommendations, of the criteria used for deriving a status, as well as details of other species-pertinent information.

Information gathering is focused on the most recent available data, estimates, informed guesses and identification of needed knowledge that allow:

1. assignment to IUCN categories of threat;
2. broad-based management recommendations;
3. specific conservation-oriented research recommendations useful to generate the knowledge needed to develop more comprehensive management and recovery programs *in situ* and/or *ex situ*.

On the last day of a C.A.M.P. workshop, participants form Special Issue Working Groups to discuss problems of conservation and management that emerged in the workshop, making recommendations for their solution using information and assessments generated in the C.A.M.P. If time permits there is also a session for personal commitments related to the recommendations.

The results of the initial C.A.M.P. workshops are reviewed by distribution to the following:

1. as a draft to workshop participants immediately following the workshop
2. as a draft after corrections to a few senior biologists who were participants in the workshop.
3. as a Report to experts and other users of the information in the greater conservation community

A C.A.M.P. workshop is defined as a “process” because it is a part of a continuing and evolving development of creating and improving conservation and recovery plans for the taxa involved. The C.A.M.P. review process facilitates dissemination of information from experts locally and internationally. The “process” presumes that conditions will change for the populations and habitat and a follow-up workshop will be required to reconsider issues in greater depth, or on a regional basis, or incorporate the inevitable changes. This “process” provides a system of monitoring of the population status over time as well as of the implementation and effectiveness of the earlier workshop recommendations.

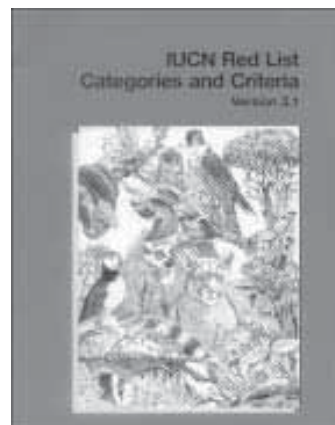
The C.A.M.P. process is unique in its ability to prioritize intensive management action for species conservation in the wild and in captivity, if required. C.A.M.P. documents are used as guidelines by national and regional wildlife agencies, NGO’s, and zoos as they develop their own action plans. C.A.M.P. reports, with their dependence on methodology that is participatory, objective and scientific have proved to be acceptable to states and nations as well as institutions for developing biodiversity strategies. C.A.M.P. workshops contribute to the wise worldwide use of limited resources for species conservation.

Global Assessment Programme (G.A.P.)

The Global Assessment Programme included a Global Mammal Assessment GMA which was organised in collaboration with the Non-volant Small Mammal C.A.M.P. The GMA is part of a larger global process of assessing species across different taxonomic groups. Other such exercises include the Global Amphibian Assessment, Global Reptile Assessment and Global Freshwater Diversity Assessment. The focus of GMA is to provide standardized status assessments according to IUCN global categories for species of mammals all over the world. The GMA, like other GAP processes also include mapping as a tool in aiding assessments. The difference between the C.A.M.P. process and GAPs is that the former derives the status following a logical mode of data compilation, interpretation and status assessment.

The 2001 IUCN Red List Criteria (Version 3.1)

The C.A.M.P. workshop process employs the IUCN Red List Criteria as a tool in assessing species status in a group of taxa. The IUCN Red List Criteria were revised in 1994 and these objective criteria were revised again in 2000 and ratified by the IUCN for use in threat categorisation at the global level (IUCN, 2001). The structure of the categories includes extinct, threatened, non-threatened, data deficient and not evaluated divisions; the first three divisions are further split into subcategories (Figure 6). Since 1991, the old Red Data Book categories have undergone successive changes to accommodate general guidelines for across taxonomic groups. To make application of the Criteria more universal, numerical values were attached to the different criteria for threat categories. The 2001 version (version 3.1)



also includes a purely quantitative criterion, which involves computation of the probability of extinction (such as in a population viability analysis) over a time frame for a taxon. The 2001 version of the Red List threatened categories are derived through a set of 5 criteria based on which the threatened category is assigned. The term “threatened” according to the 2001 IUCN categories means Critically Endangered, Endangered or Vulnerable. The 5 criteria for threat categories (IUCN, 2001) are:

- (A) Population reduction
- (B) Restricted distribution, continuing decline and fluctuation
- (C) Restricted population and continuing decline
- (D) Very small population
- (E) Probability of extinction

For a taxon to be categorised as threatened, it needs to qualify for any one of the above 5 criteria only. Not qualifying for any of the above criteria could mean that a taxon is either not threatened or is data deficient.

With the popularisation of the 1994 IUCN Red List Criteria and its application around the world, various specialists and scientists of taxonomic groups suggested a more serious look at the criteria. The IUCN formed a Red List Review Committee in 1998 to suggest changes to the 1994 Criteria and after nearly 2 years of workshops and deliberations, the 2001 IUCN Red List Criteria were drafted and accepted in October 2000. All assessments from 2001 are based on the latest version (3.1) of the Red List Criteria, including some of the current Conservation Assessment and Management Plan (C.A.M.P.) Workshop for Non-volant Small Mammals of South Asia (2002). The changes in the Criteria can be referred in IUCN (2001) (Appendix I of this report) but the overall structure of the Categories is shown in Figure 6. The changes in the structure of the categories from the 1994 iteration include the upgrading of Lower Risk near threatened and least concern to full categories Near Threatened and Least Concern. The subcategory of Lower Risk conservation dependant was removed completely from the new structure.

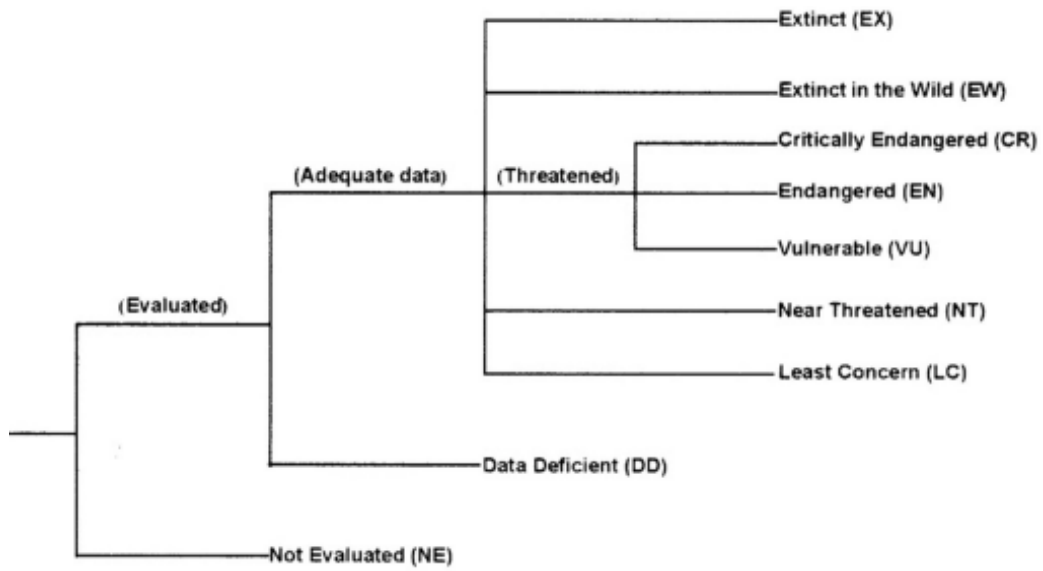


Figure 6: Structure of the 2001 IUCN Categories

IUCN Red List Categories and Criteria Version 3.1

Prepared by the IUCN Species Survival Commission
As approved by the 51st meeting of the IUCN Council Gland, Switzerland
9 February 2000, IUCN – The World Conservation Union, 2001

The Red List Categories and Criteria, Version 3.1 are available at:
<http://www.iucn.org/themes/ssc/red-lists.html>

THE CATEGORIES A representation of the relationships between the categories is shown in Figure 1 of the Report.

EXTINCT (EX)

A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

EXTINCT IN THE WILD (EW)

A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

CRITICALLY ENDANGERED (CR)

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see Section V), and it is therefore considered to be facing an extremely high risk of extinction in the wild.

ENDANGERED (EN)

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see Section V), and it is therefore considered to be facing a very high risk of extinction in the wild.

VULNERABLE (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable (Sec. V), and it is therefore considered to be facing a high risk of extinction in the wild.

Note: As in previous IUCN categories, the abbreviation of each category (in parenthesis) follows the English denominations when translated into other languages (see Annex 2).

NEAR THREATENED (NT)

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

LEAST CONCERN (LC)

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

DATA DEFICIENT (DD)

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available.

In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

NOTEVALUATED (NE)

A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

THE IUCN RED LIST CRITERIA

CRITICALLY ENDANGERED (CR)

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing an extremely high risk of extinction in the wild:

A. Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of $>$ or $=90\%$ over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:

- (a) direct observation
- (b) an index of abundance appropriate to the taxon
- (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
- (d) actual or potential levels of exploitation
- (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

2. An observed, estimated, inferred or suspected population size reduction of $>$ or $=80\%$ over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

3. A population size reduction of $>$ or $=80\%$, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.

4. An observed, estimated, inferred, projected or suspected population size reduction of $>$ or $=80\%$ over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:

- 1. Extent of occurrence estimated to be less than 100 km², and estimates indicating at least two of a–c:
 - a. Severely fragmented or known to exist at only a single location.
 - b. Continuing decline, observed, inferred or projected, in

any of the following:

- (i) extent of occurrence
- (ii) area of occupancy
- (iii) area, extent and/or quality of habitat
- (iv) number of locations or subpopulations
- (v) number of mature individuals.

c. Extreme fluctuations in any of the following:

- (i) extent of occurrence
- (ii) area of occupancy
- (iii) number of locations or subpopulations
- (iv) number of mature individuals.

2. Area of occupancy estimated to be less than 10 km², and estimates indicating at least two of a–c:

a. Severely fragmented or known to exist at only a single location.

b. Continuing decline, observed, inferred or projected, in any of the following:

- (i) extent of occurrence
- (ii) area of occupancy
- (iii) area, extent and/or quality of habitat
- (iv) number of locations or subpopulations
- (v) number of mature individuals.

c. Extreme fluctuations in any of the following:

- (i) extent of occurrence
- (ii) area of occupancy
- (iii) number of locations or subpopulations
- (iv) number of mature individuals.

C. Population size estimated to number fewer than 250 mature individuals and either:

- 1. An estimated continuing decline of at least 25% within three years or one generation, whichever is longer, (up to a maximum of 100 years in the future) OR
- 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a–b):

a. Population structure in the form of one of the following:

- (i) no subpopulation estimated to contain more than 50 mature individuals, OR
- (ii) at least 90% of mature individuals in one subpopulation.

b. Extreme fluctuations in number of mature individuals.

D. Population size estimated to number fewer than 50 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 50% within 10 years or three generations, whichever is the longer (up to a maximum of 100 years).

ENDANGERED(EN)

A taxon is Endangered when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing a very high risk of extinction in the wild:

A. Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of $>$ or $=$ 70% over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:

- (a) direct observation
- (b) an index of abundance appropriate to the taxon
- (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
- (d) actual or potential levels of exploitation
- (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

2. An observed, estimated, inferred or suspected population size reduction of $>$ or $=$ 50% over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

3. A population size reduction of $>$ or $=$ 50%, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.

4. An observed, estimated, inferred, projected or suspected population size reduction of $>$ or $=$ 50% over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:

1. Extent of occurrence estimated to be less than 5000 km², and estimates indicating at least two of a–c:

a. Severely fragmented or known to exist at no more than five locations.

b. Continuing decline, observed, inferred or projected, in any of the following:

(i) extent of occurrence

(ii) area of occupancy

(iii) area, extent and/or quality of habitat (iv) number of locations or subpopulations

(v) number of mature individuals.

c. Extreme fluctuations in any of the following:

(i) extent of occurrence

(ii) area of occupancy

(iii) number of locations or subpopulations

(iv) number of mature individuals.

2. Area of occupancy estimated to be less than 500 km², and estimates indicating at least two of a–c:

a. Severely fragmented or known to exist at no more than five locations.

b. Continuing decline, observed, inferred or projected, in any of the following:

(i) extent of occurrence

(ii) area of occupancy

(iii) area, extent and/or quality of habitat

(iv) number of locations or subpopulations

(v) number of mature individuals.

c. Extreme fluctuations in any of the following:

(i) extent of occurrence

(ii) area of occupancy

(iii) number of locations or subpopulations

(iv) number of mature individuals.

C. Population size estimated to number fewer than 2500 mature individuals and either:

1. An estimated continuing decline of at least 20% within five years or two generations, whichever is longer, (up to a maximum of 100 years in the future) OR

2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a–b):

a. Population structure in the form of one of the following:

(i) no subpopulation estimated to contain more than 250 mature individuals, OR

(ii) at least 95% of mature individuals in one subpopulation.

b. Extreme fluctuations in number of mature individuals.

D. Population size estimated to number fewer than 250 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or five generations, whichever is the longer (up to a maximum of 100 years).

VULNERABLE (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing a high risk of extinction in the wild:

A. Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of $>$ or $=$ 50% over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are: clearly reversible AND understood AND ceased, based on (and specifying) any of the following:

- (a) direct observation
- (b) an index of abundance appropriate to the taxon
- (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
- (d) actual or potential levels of exploitation
- (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

2. An observed, estimated, inferred or suspected population size reduction of $>$ or $=$ 30% over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

3. A population size reduction of $>$ or $=$ 30%, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.

4. An observed, estimated, inferred, projected or suspected population size reduction of $>$ or $=$ 30% over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:

1. Extent of occurrence estimated to be less than 20,000 km², and estimates indicating at least two of a–c:

- a. Severely fragmented or known to exist at no more than 10 locations.
- b. Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations

(v) number of mature individuals.

c. Extreme fluctuations in any of the following:

- (i) extent of occurrence
- (ii) area of occupancy
- (iii) number of locations or subpopulations
- (iv) number of mature individuals.

2. Area of occupancy estimated to be less than 2000 km², and estimates indicating at least two of a–c:

- a. Severely fragmented or known to exist at no more than 10 locations.
- b. Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.

c. Extreme fluctuations in any of the following:

- (i) extent of occurrence
- (ii) area of occupancy
- (iii) number of locations or subpopulations
- (iv) number of mature individuals.

C. Population size estimated to number fewer than 10,000 mature individuals and either:

- 1. An estimated continuing decline of at least 10% within 10 years or three generations, whichever is longer, (up to a maximum of 100 years in the future) OR
- 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a–b):
 - a. Population structure in the form of one of the following:
 - (i) no subpopulation estimated to contain more than 1000 mature individuals, OR
 - (ii) all mature individuals are in one subpopulation.
 - b. Extreme fluctuations in number of mature individuals.

D. Population very small or restricted in the form of either of the following:

- 1. Population size estimated to number fewer than 1000 mature individuals.
- 2. Population with a very restricted area of occupancy (typically less than 20 km²) or number of locations (typically five or fewer) such that it is prone to the effects of human activities or stochastic events within a very short time period in an uncertain future, and is thus capable of becoming Critically Endangered or even Extinct in a very short time period.

E. Quantitative analysis showing the probability of extinction in the wild is at least 10% within 100 years.

IUCN Regional Red List Guidelines

The IUCN Red List Categories and Criteria (IUCN 2001; see also <http://www.iucn.org/themes/ssc/redlists/rlcategories2000.html>) were developed for classifying species at high risk of global extinction, i.e. for assessment at the global level. At regional, national and local levels (hereafter referred to as regional level) there are essentially two options: (1) To publish an unaltered subset of the global Red List encompassing those species that reproduce in the region or at any stage regularly visit the region. This may be a feasible option, particularly when the region has a high number of endemics or threatened near endemics, or when there is currently a pronounced overall deficiency of data pertaining to species status within the region. (2) To assess species' extinction risk and publish Red Lists within the specific region. For the purposes of regional conservation assessments there are important reasons to assess species' extinction risk and publish Red Lists within specific geographically defined areas.

While the first option is straightforward, the second involves a number of issues not encountered at the global level, including the assessment of populations across geopolitical borders, non-breeding phases of populations and nonindigenous taxa. When making assessments at regional levels it is also particularly important to recognize that while IUCN Red List Categories reflect the relative extinction risk of species, the process of setting priorities for conservation actions may require several additional considerations. As a consequence, the following guidelines were produced to assist in the application of the IUCN Red List Categories and Criteria at regional levels.

Recognizing the need for coherent guidelines for the application of Red List Categories at regional levels, the First World Conservation Congress held in Montreal in 1996, adopted a resolution (WCC Res. D. 1.25) that "Requests the SSC, within available resources, to complete the development of guidelines for using the IUCN Red List Categories at the regional level as soon as it is practicable..."

As part of the process to resolve these issues, the Regional Application Working Group (RAWG) was formed under the auspices of the Species Survival Commission's (SSC) Red List Programme. The membership of RAWG included people with technical experience in the development of the IUCN Red List Criteria, as well as those with practical experience of producing Red Lists at regional levels. The group has consulted many different regional and national groups, participated in regional Red List assessment workshops, published draft versions of the guidelines (Gärdenfors *et al.* 1999, 2001) and undertaken a process of ongoing modification and improvement to the earlier drafts.

The final guidelines are presented here. Some issues have proved especially difficult to resolve to everyone's satisfaction. The users of these guidelines will deal with a wide diversity of natural systems and taxa, within different political and social contexts. We have encountered many of these during the drafting phases and have tried to take into account these diverse circumstances. Following much deliberation, the guidelines presented here are based on sound general principles and we recommend them to anyone who wishes to undertake Red List assessments at the regional level.

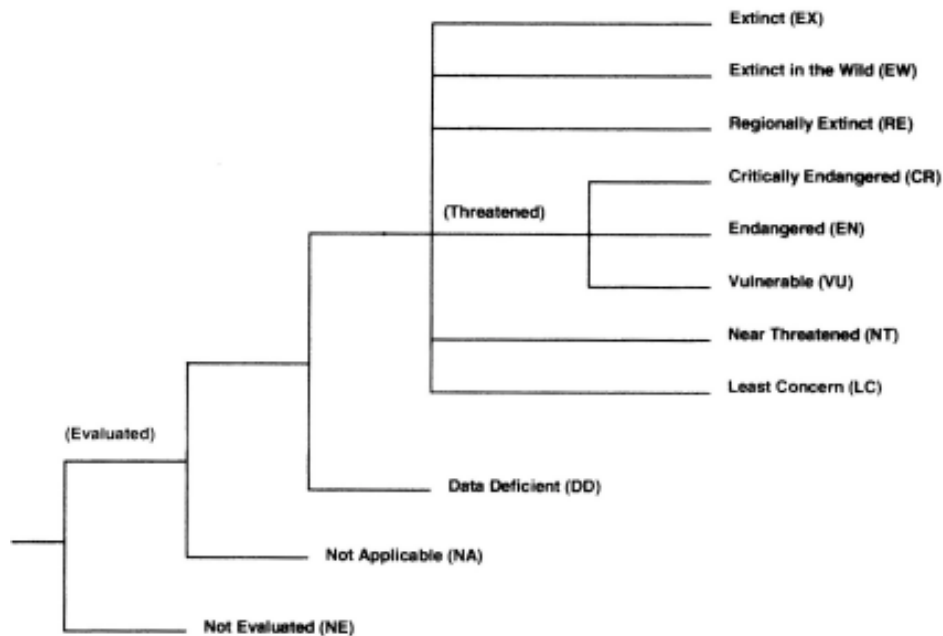


Figure 7: Structure of the categories at regional level

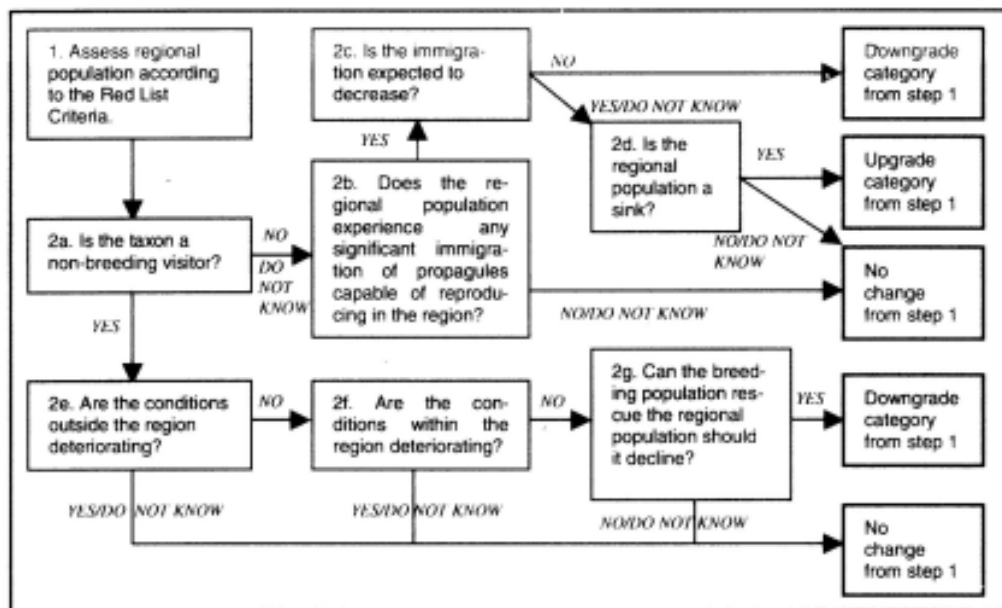


Figure 8: Conceptual scheme of the procedure for assigning an IUCN Red List Category at the regional level. In Step 1 all data used should be from the regional population, not the global population. The exception is when evaluating a projected reduction or continued decline of a non-breeding population, in such cases conditions outside the region must be taken into account in step 1. Likewise, breeding populations may be affected by events in, e.g., wintering areas, which must be considered in step 1.

Acknowledgements

A Conservation Assessment and Management Plan Workshop or C.A.M.P. is a truly amazing event. The three stages of this exercise -- planning, implementation and follow-up -- are all exercises in chaotic activity and soul-destroying work. The people who see it through: planners, participants, and promoters deserve a special thanks. It takes immense cooperation, collaboration and coordination of many people to initiate, execute and insure its utility in the long term.

Preparation

Preparation for a C.A.M.P. primarily involves putting together three important lists: 1) a list of potential participants; 2) a list of taxa, the target species; and 3) a list of potential donors. Assembling a list of participants for just any workshop may not be so difficult but for a C.A.M.P. one wants people who have genuine information – field biologists, taxonomists, foresters who have studied the target taxa and/or its habitat. There are few readymade lists of these people, so hunting them down demands painstaking work. For this, we thank all the members of the Non-volant Small Community network (RILSCINSA) who helped with the list.

Even the list of taxa is not straightforward in South Asia and this requires collecting species lists from many sources and verifying each species and subspecies with recently published references. It also requires tracking down all synonyms and common names and recent taxonomic modifications. Preparation also requires collecting as many published sources of field surveys, sightings and identifications as possible for reference in the workshop. It takes months! For this we acknowledge the IUCN Red List 2000, the IUCN SSC Rodent Specialist Group, Insectivore Specialist group, Lagomorph Specialist Group, Wes Sechrest of the Global Mammal Assessment and a few members of the RILSCINSA network who either provided the primary list and/or reviewed it before the workshop. We thank Dee Ann Reeder who provided some of the most recent chapters of the yet-to-be-released *Mammals of the World* book as a basis for the taxonomic list. Kudos to participants who have not complained about the lateness of this Report while we waited for information from all different references and other national C.A.M.P. workshops such as the one held for Pakistan mammals in 2003.

Our sponsors' generous donations supported the network itself, training both before and after the C.A.M.P., all logistics, planning, accommodation, travel bringing experts from four countries and from the length and breadth of India to one venue and the production of this bulky report.

Many field biologists responded to the Biological Information Sheet circulated before the workshop. The information from most of these sheets enhanced the output at the workshop for areas not represented by individuals. We wish to thank all those who responded to this call, irrespective of their attendance at the workshop, individually: M.M. Animon, P. Arun, S. Chakraborty, G.R. Chandrashekhar, A. Datta, W.L.D.P.T.S. de A. Goonatilake, Hassan, G.A. Jathar, J. Joshua, G. Maheswaran, K. Mukta Bai, P.O. Nameer, P. Neelananarayanan, P. Padmanabhan, S.U. Sarker, S.K. Sharma, K. Shenoy, T.K. Shreshta, B. Srinivasulu, C. Srinivasulu, G. Suresh, J. Thapa, A. Visa, W.A.M.K. Weerasinghe, D. Wickramasinghe

Implementation

When the C.A.M.P. workshop begins, no matter how much you tell the participants to be prepared for hard work, nobody can quite believe what this actually entails. Filling out 8-page Taxon Data Sheets with information that you might have come across in the field years ago; arguing with other participants and facilitators; and learning the brain-boggling IUCN Red List Criteria! It all takes its toll. The first night that you work until 9 or 10 is kind of fun – something different for a workshop – but by the third and fourth days (and nights) of filling in the ubiquitous sheets, participants are wondering what kind of monsters invented the C.A.M.P. Workshop! By the last day when everyone thinks they can't part with another piece of information, suddenly it's over – there is a list of species which have been carefully assessed and categorized using IUCN's Red List Criteria and Categories and more information on some of them than has ever been compiled before. Participants are not the only ones to suffer. C.A.M.P. Recorders, who come from ZOO, WILD and CBSG, South Asia, also sit up late at night with strained eyes and aching backs to record information in a computerized database. This makes it possible for participants to take

home a draft report right from the workshop.

We are particularly grateful for the external advisors and partners of RILSCINSA who came from far away to attend the workshop and gave their valuable expertise, Giovanni Amori, Chair, IUCN SSC Rodent Specialist Group, and Mike Jordan, Chair, IUCN SSC Reintroduction Specialist Group, Europe and North Asia. They also stayed to participate as resource persons in the Small Mammal Training Workshop on Reintroduction, Welfare and Captive Breeding of NVSMs held immediately afterwards.

Special thanks to Wes Sechrest, Carlo Rondinini, Ben Collen and Jonathan Bielby from the Global Mammal Assessment (GMA) process for taking part in the C.A.M.P. workshop as well as for documenting the information as part of the assessment process at the global level.

Follow-up

As if it was not enough to ask participants to sit and work so hard for five days, we also requested them to go through the draft Taxon Data Sheets and mark mistakes, provide information that they could not access at the workshop, and send them back to us. We should acknowledge those who did so, e.g. Sampath Goonathilake, M.S. Pradhan, Sujit Chakraborty, P.O. Nameer, C. Srinivasulu, S.U. Sarker, as well as those who read the Draft of this Report and corrected, commented and criticized. C. Srinivasulu and his wife, Bhargavi deserve a special thanks in the gruelling compilation and standardization of data on the C.A.M.P. database as well as converting the information into PageMaker™ format. They deserve special thanks for creating locality maps for every species based on the information provided at the workshop and from scanning through literature.

Finally we acknowledge the immense work done by our staff: Latha Ravi Kumar, Manager, who assisted in the coordination of all lists of people, briefing material, sources, invitations, schedules and travel. Latha, B. Jegadeesan, Manju Siliwal, R. Marimuthu and B.A. Daniel assisted with the typesetting, proofreading, consistency checks, maps, taxon data sheets and tables for the final report.

There were many, many late nights and frayed nerves, with some learning a new computer programme so they could input data directly during the C.A.M.P. We thank our staff Latha Ravi Kumar, A.R. Binu Priya, Manju Siliwal and B.A. Daniel for their hours of research and recording as well. J. Sheela and B. Ravichandran assisted much with hospitality, administration and running about as well as B. Jyothi Maler, S. Saroja, Geetha Kannan, S. Jaya, K. Krishnaveni and S. Kumar, who assisted with many tasks and at various stages of the workshop.

Our host, Karl Kübel Institute and its staff did a wonderful job in ensuring the right atmosphere and venue for the workshop and in keeping more than 30 participants happy enough to stick around for a full five days.

Now the Report is out, all of us must utilize it to the maximum to ensure the survival of all species of NVSMs of South Asia.

Our Sponsors – Knowsley Safari Park, Columbus Zoo, Universities Federation for Animal Welfare and Chester Zoo and Columbus Zoo – have been acknowledged elsewhere but we can never say “thank you” enough to them.

We would be highly remiss if we did not acknowledge the first Chair of RILSCINSA, the late Dr. Iswar Prakash for his encouragement and help during his last years and months on Earth. This Report is dedicated to him for his lifetime of work on behalf of small mammals. We also acknowledge our current Chair Dr. Sujit Chakraborty, Retd. Scientist, Z.S.I. for his invaluable inputs in the conduct of this C.A.M.P. workshop, and his continued support of the activities of RILSCINSA network.

*Sally Walker and Sanjay Mohur, Organisers and Facilitators
Conservation Assessment and Management Plan Workshop for South Asian Non-volant Small Mammals*

**Status of Non-volant South Asian Small Mammals
Conservation Assessment and Management Plan (C.A.M.P.) Workshop**

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Status of South Asian Non-volant Small Mammals

4. Taxon Data Sheets

***Hemiechinus auritus* (Gmelin, 1770)**

LEAST CONCERN in South Asia

Synonyms: *Erinaceus auritus* Gmelin, 1770; *Erinaceus megalotis* Blyth, 1845

Order: Erinaceomorpha

Family: Erinaceidae

Common names: English: Long-eared Hedgehog

Taxonomic remarks: Belongs to subgenus *Hemiechinus* Fitzinger, 1866. Ellerman and Morrison-Scott (1951) treated *Hemiechinus megalotis* Blyth, 1845 as a distinct species and included 16 subspecies of *Hemiechinus auritus* (Gmelin, 1770) of which only one subspecies, now a species, pertains to South Asia. This was also followed by Roberts (1997). Niethammer (1973) treated *Hemiechinus megalotis* Blyth, 1845 as a subspecies, followed by Corbet and Hill (1992), Hutterer (1993) and IUCN (1995). Presently *H. collaris* is considered to be the subspecies of *H. auritus*. So much of the published information on habitat and distribution of *H. auritus* are in fact about *H. collaris*. Thus, the species reported from Rajasthan, India is *H. collaris* and that from Pakistan is *H. auritus*

Habit: Nocturnal, semi-fossorial, diet chiefly insects and tubers

Habitat: Deserts

Niche: Artemesia steppe

Elevation: 900 - 2500m

Distribution

Global: Afghanistan, Cyprus, Egypt, Iran, Libya, Mongolia, Pakistan, Tazkistan, Turkmenistan, Uzbekistan

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001sq km

Locations/subpopulations: 6/2, Fragmented

Habitat status: Quantitative and qualitative increase in habitat conditions due to increased desertification

Threats

Threats not known for this species or to the habitat where it occurs

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed in South Asia. No major threats. Also found in neighbouring region.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Ziaret Juniper Forest WS, Nag Valley GR

Recommendations

Research: Survey studies, taxonomic research

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty *et al.*, 2004; Roberts, 1997

Compilers

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Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Hemiechinus auritus* (Gmelin, 1770) is known in Pakistan



Distribution of *Hemiechinus auritus* (Gmelin, 1770) in South Asia (Pakistan) from literature and field studies

Distribution in
South Asia

	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
PAKISTAN				
Baluchistan				
Kelat	27°30'	66°00'	Semi D.	Roberts (1997)
Kelat				
Kharan	-	-	Semi D.	Roberts (1997)
Kharan				
Quetta	30°00'	66°53'	Semi D.	Roberts (1997)
Chiltan Hills	30°12'	67°00'	Semi D.	Roberts (1997)
Quetta				
Quetta & Pishin	30°35'	67°15'	Semi D.	Roberts (1997)
Pishin Hills				
Ziaret	30°22'	67°44'	Semi D.	Roberts (1997)
Ziaret				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Hemiechinus collaris (Gray, 1830)

LEAST CONCERN

Synonyms: *Erinaceus collaris* Gray, 1830; *Erinaceus grayi* Bennett, 1832; *Erinaceus spatangus* Bennett, 1832; *Erinaceus blanfordi* Anderson, 1878; *Paraechinus hypomelas blanfordi* (Anderson, 1878)

Order: Erinaceomorpha

Family: Erinaceidae

Common names: English: Collared Hedgehog; Rajasthani: *Jhochua*

Taxonomic remarks: Belongs to subgenus *Hemiechinus* Fitzinger, 1866. Ellerman and Morrison-Scott (1951), and Corbet (1978) included this as a subspecies under *Hemiechinus auritus* (Gmelin, 1770). It has been accorded specific status by Corbet and Hill (1992). The name *Erinaceus blanfordi* Anderson, 1878 erroneously included under the *Paraechinus hypomelas* Brandt, 1836 by Ellerman and Morrison-Scott (1951) and, Corbet (1988) is in fact a *Hemiechinus* form as pointed out by Agrawal (1973). Hutterer (1993) and IUCN (1995) also synonymise *Erinaceus blanfordi* Anderson, 1878 with this taxon

Habit: Nocturnal, semi-fossorial

Habitat: Desert and Semi Deserts

Niche: Forest, agriculture ecosystem and dry plains near water bodies

Elevation: Up to 2,000m

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [India > 20,000; Pakistan > 20,000]

Locations/subpopulations: Many/4, Fragmented

Habitat status: Quantitative and qualitative increase in habitat conditions due to desertification process

Threats

Habitat fragmentation due to road laying activities, hunting for consumption and medicinal use

Trade: For local consumption and medicinal properties

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field surveys, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

Wildlife Legislation:

India: Schedule IV of the Indian Wildlife (Protection) Act, 1972 amended up to 2002.

Pakistan: None

CITES: Not listed

Presence in Protected Areas

India

Gujarat: Narayan Sarovar WS

Rajasthan: Desert NP

Pakistan

Punjab: Lal Suhanra NP; **Sind:** Kirthar NP, Indus GR

Recommendations

Research: Survey studies, taxonomic research

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Kumar & Pandey, 1994; Vyas 2002; Agarawal & Chakraborty, 2000; Chakraborty *et al.*, 2004; Kankane, 2004; Roberts, 1997; Singh, 1998 BIS on species by: J. Joshua

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Reviewers: Rest of the participants

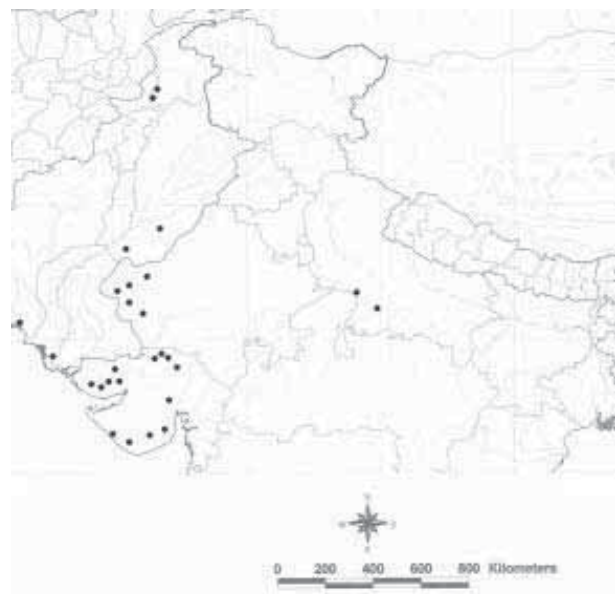
Recent Field Studies

India:

J. Joshua, Gujarat, 2000 onwards, Small mammals of Gujarat, India

P.L. Kankane, Desert National Park, Rajasthan, 2000 onwards, Mammals Inventorisation

Locations from where *Hemiechinus collaris* (Gray, 1830) is known in India and Pakistan



Distribution of *Hemiechinus collaris* (Gray, 1830) (Endemic to India and Pakistan) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Gujarat									
Ahmedabad	23°02'	72°37'	Trop. F.	T.P. Bhattacharyya (pers. comm.); throughout district	Nachna	21°30'	71°43'	D.	S. Chakraborty & C. Srinivasulu (pers. comm.)
Ahmedabad					Sri Mohangath	21°17'	71°14'	D.	S. Chakraborty (pers. comm.)
Uttar Pradesh									
Amreli									
Amreli	20°50'	72°45'	Trop. F.	T.P. Bhattacharyya (pers. comm.); throughout district	Etiawah	26°28'	79°31'	Trop. F.	Kumar & Panday (1994)
Banaskantha					Kanpur	26°30'	80°21'	Trop. F.	Kumar & Panday (1994)
Bhabhar	24°04'	71°35'	Trop. F.	J. Joshua, BIS					
Deesa	24°14'	72°10'	Trop. F.	Chakraborty & Agrawal (2000); T.P. Bhattacharyya (pers. comm.)	Pakistan				
Palanpur	24°10'	72°26'	Trop. F.	Vyas (2002)	North West Frontier Province				
Bhavnagar					Kohat	33°42'	72°00'	Mon. St. F.	Roberts (1997)
Bhavnagar	21°40'	71°50'	Trop. F.	T.P. Bhattacharyya (pers. comm.); throughout district	Peshawar	30°17'	68°03'	Mon. St. F.	Roberts (1997)
Kachch									
Umarsar	-	-	Semi D.	J. Joshua, BIS	Punjab				
Than Dadur	-	-	Semi D.	J. Joshua, BIS	Bhawalpur	29°23'	71°39'	Trop. F.	Roberts (1997)
Bhuj	23°16'	69°40'	Semi D.	J. Joshua, BIS	Cholistan	28°15'	70°45'	Semi D.	Roberts (1997)
Naliya	23°16'	68°15'	Semi D.	J. Joshua, BIS					
Great Rann	24°05'	70°10'	Semi D.	Singh (1998); Vyas (2002)	Mianwali				
Junagadh					Salt Range	-	-	Trop. F.	Roberts (1997)
Junagadh	21°15'	70°20'	Trop. F.	T.P. Bhattacharyya (pers. comm.); throughout district	Rahimyar Khan				
Mehsana					Rahimyar Khan	28°25'	70°18'	Trop. F.	Roberts (1997)
Mehsana	23°40'	72°30'	Trop. F.	T.P. Bhattacharyya (pers. comm.); throughout district	Sind				
Porbander					Karachi	24°52'	67°03'	Trop. F.	Roberts (1997)
Porbander	21°38'	69°36'	Trop. F.	Vyas (2002)	Thatta	24°45'	67°56'	Trop. F.	Roberts (1997)
Rajasthan									
Barmer									
Langera	-	-	D.	S. Chakraborty (pers. comm.)					
Barmer & Jaisalmer									
Desert NP	-	-	D.	Kankane (2004)					
Jaisalmer									
Bazu	-	-	D.	S. Chakraborty (pers. comm.)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Hemiechinus hypomelas* (Brandt, 1836)**

LEAST CONCERN in South Asia

Synonyms: *Erinaceus hypomelas* Brandt, 1836; *Paraechinus hypomelas* (Brandt, 1836); *Erinaceus jerdoni* Anderson, 1878; *Paraechinus amir* Thomas, 1918

Order: Erinaceomorpha

Family: Erinaceidae

Common names: English: Brandt's Hedgehog

Taxonomic remarks: Belongs to subgenus *Paraechinus* Trouessart, 1879. Ellerman and Morrison-Scott (1951) erroneously synonymised *Erinaceus blanfordi* Anderson, 1878 with *Paraechinus hypomelas blanfordi* (Anderson, 1878) that Agrawal (1973) rectified and placed it under *Hemiechinus auritus* (Gray, 1830). The name *Erinaceus jerdoni* Anderson, 1878 too was synonymised with *Paraechinus hypomelas blanfordi* (Anderson, 1878) by Ellerman and Morrison-Scott (1951). Corbet and Hill (1992) treat this taxon as *Paraechinus hypomelas* (Brandt, 1836) and list two subspecies. Frost *et al.* (1991) and IUCN (1995) also list two valid subspecies from the region.

Habit: Nocturnal, semi-fossorial

Habitat: Desert and Semi Deserts

Niche: Deserts, riverine areas and moist steppe

Elevation: Up to 1,500m

Distribution

Global: Iran, Islands of Tanb and Kharg, Oman, Pakistan, Turkmenistan, Uzbekistan

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 12/5, Fragmented

Habitat status: Not known

Threats

Threats not known for this species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats known.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Hazar Ganji NP

Recommendations

Research: Survey studies, taxonomic research

Management: Monitoring

Captive stocks: None

Comments

As per Roberts (1997) population is declining and is nowhere plentiful

Sources

Chakraborty *et al.*, 2004; Roberts, 1997

Compilers

T. P. Bhattacharyya, S.S. Saha, Sujit Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Hemiechinus hypomelas* (Brandt, 1836) is known in Pakistan



Distribution of *Hemiechinus hypomelas* (Brandt, 1836) in South Asia (Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
PAKISTAN				
Baluchistan				
Mekran	26°00'	63°30'	Semi D.	Roberts (1997)
Mekran				
Sibi				
Sibi Plains	29°33'	67°54'	Semi D.	Roberts (1997)
North West Frontier Province				
Bannu				
Bannu	33°48'	70°37'	Semi D.	Roberts (1997); many locations
Dera Ismail Khan				
Dera Ismail Khan	31°48'	70°56'	Semi D.	Roberts (1997); many locations
Kurram				
Kurram	34°00'	70°00'	Mon. St. F.	Roberts (1997)
Mardan				
Mardan	34°19'	71°56'	Mon. St. F.	Roberts (1997); many locations
Peshawar				
Peshawar	30°17'	68°03'	Mon. St. F.	Roberts (1997); many locations
Waziristan				
Waziristan	33°00'	70°00'	Mon. St. F.	Roberts (1997)
Punjab				
Trans Indus				
Dera Gazi Khan	30°03'	70°38'	Trop. F.	Roberts (1997)
Khanewal				
Khanewal	30°18'	71°56'	Trop. F.	Roberts (1997)
Sind				
Dadu & Larkana	-	-	Semi D.	Roberts (1997); near Dadu (26°44' N & 67°47' E) many locations in the foothills of Suleiman Hills
Suleiman Range				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Hemiechinus micropus* (Blyth, 1846)**

LEAST CONCERN

Synonyms: *Erinaceus micropus* Blyth, 1846; *Paraechinus micropus* (Blyth, 1846); *Hemiechinus mentalis* Fitzinger, 1867; *Erinaceus pictus* Stoliczka, 1872; *Paraechinus intermedius* Biswas and Ghose, 1970; *Paraechinus intermedius kutchicus* Biswas and Ghose, 1970

Order: Erinaceomorpha

Family: Erinaceidae

Common names: English: Indian Hedgehog

Taxonomic remarks: Belongs to subgenus *Paraechinus* Trouessart, 1879. Ellerman and Morrison-Scott (1951) synonymised *Erinaceus nudiventris* Horsfield, 1851 with *Paraechinus micropus* (Blyth, 1846) with a doubtful status, a trend followed by Corbet and Hill (1992). Frost *et al.* (1991), Hutterer (1993) and IUCN (1995) treat *nudiventris* as a distinct species – *Hemiechinus nudiventris* (Horsfield, 1851) under subgenus *Paraechinus* Trouessart, 1879. Biswas and Ghose (1970) described new species and subspecies, *Paraechinus intermedius* and *Paraechinus intermedius kutchicus*.

Habit: Nocturnal and crepuscular, semi-fossorial

Habitat: Desert and Semi deserts

Niche: Hedges and bushes

Elevation: Up to 700m

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001sq km [India > 2,000; Pakistan > 2,000]

Locations/subpopulations: Many/unknown, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of < 20% in last 10 years and a similar trend predicted in future due to habitat loss, alien species - *Prosopis juliflora* - invasion, road laying, agricultural expansion and human habitations

Threats

Habitat loss due to road laying, alien species (*Prosopis juliflora*) invasion, natural predators and hunting, Species in local trade for consumption, medicinal values

Trade: Species in local trade for consumption, medicinal values and in certain tracts its skin is kept on the lid of an earthen pot in which milk is curdled to make yoghurt (J. Joshua, BIS)

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, informal sightings, literature, museum records; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Gujarat: Narayan Sarovar WS

Rajasthan: Desert NP

Recommendations

Research: Survey studies, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

As per Roberts (1997) population is declining and is nowhere plenty

Sources

Chakraborty *et al.*, 2004; Ellerman & Morrison-Scott, 1951; Kankane, 2004; Roberts, 1997; BIS on species by: J. Joshua

Compilers

T. P. Bhattacharyya, S.S. Saha, Sujit Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

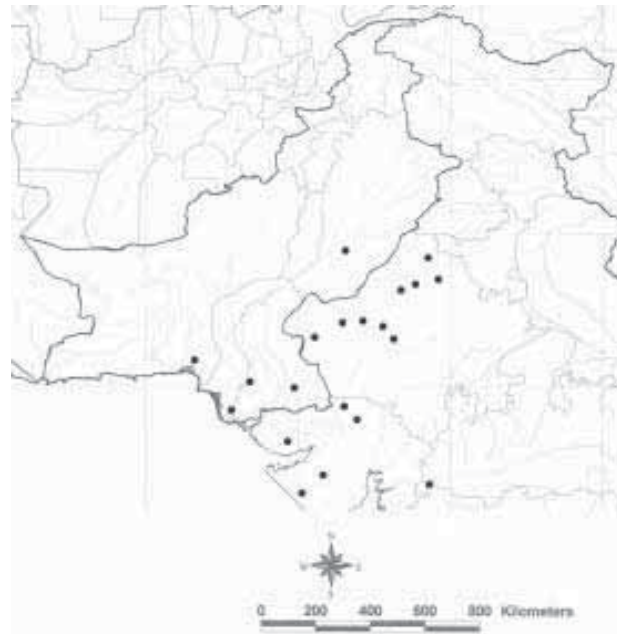
Reviewers: Rest of the participants

Recent Field Studies

S. Chakraborty, Thar Desert, Rajasthan, 1999-2003, Faunal diversity of Thar Desert, Rajasthan
J. Joshua, Gujarat, 2000 onwards, Small mammals of Gujarat, India

P.L. Kankane, Desert National Park, Rajasthan, 2000 onwards, Mammals Inventorisation

Locations from where *Hemiechinus micropus* (Blyth, 1846) is known in India and Pakistan



Distribution of *Hemiechinus micropus* (Blyth, 1846) (Endemic to India and Pakistan) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
INDIA									
Gujarat									
Banaskantha	24°15'	72°30'	Trop. F.	J. Joshua, BIS	Jodhpur	26°47'	72°20'	D.	T.P. Bhattacharyya (pers. comm.)
Banaskantha	24°15'	72°10'	Trop. F.	Chakraborty & Agrawal (2000)	Dechu	-	-	D.	T.P. Bhattacharyya (pers. comm.)
Deesa					Kailana				
Kachch	23°16'	69°40'	Semi D.	Chakraborty & Agrawal (2000)	PAKISTAN				
Bhuj	23°35'	70°00'	Semi D.	J. Joshua, BIS	Punjab				
Kachch	-	-	Trop. F.	Chakraborty & Agrawal (2000)	Bhawalpur	29°23'	71°39'	Trop. F.	Roberts (1997)
Nanda					Bhawalpur				
Junagadh	21°15'	70°20'	Trop. F.	Chakraborty & Agrawal (2000); J. Joshua, BIS	Sind				
Junagadh					Hyderabad	25°30'	68°45'	Trop. F.	Roberts (1997); many locations
Patan	23°50'	72°07'	Trop. F.	J. Joshua, BIS	Hyderabad				
Patan					Las Belas	25°45'	66°35'	Trop. F.	Roberts (1997); many locations
Rajkot	25°44'	75°35'	Trop. F.	Chakraborty & Agrawal (2000); J. Joshua, BIS	Las Belas				
Rajkot					Tharparkar	24°50'	70°00'	Trop. F.	Roberts (1997); many locations
Surendranagar	22°45'	71°40'	Trop. F.	Chakraborty & Agrawal (2000)	Tharparkar				
Surendranagar					Thatta	24°45'	67°56'	Trop. F.	Roberts (1997); many locations
Maharashtra					Thatta				
Nandurbar	21°47'	74°28'	Trop. F.	G. Jathar, BIS					
Toranmal									
Rajasthan									
Barmer & Jaisalmer	-	-	D.	Kankane (2004)					
Desert NP									
Bikaner	28°15'	76°36'	D.	T.P. Bhattacharyya (pers. comm.)					
Bikaner									
Lunkaneswar	-	-	D.	T.P. Bhattacharyya (pers. comm.)					
Churu	27°49'	74°29'	D.	T.P. Bhattacharyya (pers. comm.)					
Talchappar									
Hamnangarh	-	-	Semi D.	T.P. Bhattacharyya (pers. comm.)					
Kohla Farm									
Jaisalmer	-	-	D.	T.P. Bhattacharyya (pers. comm.)					
Chandan	27°02'	71°31'	D.	T.P. Bhattacharyya (pers. comm.)					
Lathi									

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Hemiechinus nudiventris (Horsfield, 1851)

NEAR THREATENED

Synonyms: *Erinaceus nudiventris* Horsfield, 1851;
Paraechinus micropus nudiventris (Horsfield, 1851)

Order: Erinaceomorpha

Family: Erinaceidae

Common names: English: Madras Hedgehog

Taxonomic remarks: Belongs to subgenus *Paraechinus* Trouessart, 1879. Ellerman and Morrison-Scott (1951) synonymised *Erinaceus nudiventris* Horsfield, 1851 with *Paraechinus micropus* (Blyth, 1846), a trend followed by Corbet and Hill (1992). Frost *et al.* (1991), Hutterer (1993) and IUCN (1995) treat it as a distinct species.

Habit: Nocturnal, semi-fossorial

Habitat: Tropical Forest

Niche: Dry deciduous scrub areas near villages

Elevation: Up to 700m

Distribution

Global: Endemic to India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 5/2, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of > 20% in last 20 years and a similar trend predicted in next 10 years due to expansion of agriculture, pesticide usage

Threats

Small-scale logging, fuelwood collection, agricultural practices, and pesticide usage

Trade: Could be in trade, but the compilers are not aware.

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, indirect information, informal sightings, literature, museum records; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **NEAR THREATENED**

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey studies, taxonomic research. Survey is required in Tamil Nadu and Andhra Pradesh to find out the possible distribution range

Management: Habitat management, monitoring

Captive stocks: None

Comments

Besides a large population in Salem in northern Tamil Nadu and adjoining southern Andhra Pradesh, two isolated

populations, one in Cudappah district in Andhra Pradesh and the other in Palakkad district in Kerala. Locally common in Tamil Nadu and Andhra Pradesh from the areas reported

Sources

Chakraborty *et al.*, 2004; Easa *et al.*, 2001; Srinivasulu & Nagulu, 2002; BIS on species by: P. Padmanabhan

Compilers

S. Chakraborty, C. Srinivasulu, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants

Recent Field Studies

Srinivasulu, C., Nallamala Hills, Andhra Pradesh, 1996 onwards, Mammals of the Nallamala Hills, Eastern Ghats, India

Chakraborty, S., Arcot and Salem districts, Tamil Nadu, 1978, Faunal inventorisation

Chakraborty, S., Chittoor district, Tamil Nadu, 1992, Faunal Inventorisation

Locations from where *Hemiechinus nudiventris* (Horsfield, 1851) is known in India



Distribution of *Hemiechinus nudiventris* (Horsfield, 1851) (Endemic to India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Andhra Pradesh				
Chittoor	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)
Neerabayulu				
Cuddapah	14°11'	79°10'	Trop. F.	Srinivasulu & Nagulu (2002)
Rajampet				
Kerala				
Palakkad	-	-	Trop. F.	Nameer (2000)
Ottapalayam				
Tamil Nadu				
Salem	11°52'	78°09'	Trop. F.	S. Chakraborty (pers. comm.)
Danishpet	12°00'	78°00'	Trop. F.	S. Chakraborty (pers. comm.)
Salem				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Caprolagus hispidus (Pearson, 1839)

ENDANGERED

Synonyms: *Lepus hispidus* Pearson, 1839

Order: Lagomorpha

Family: Leporidae

Common names: English: Hispid Hare, Assam Rabbit; Nepali: *Kharayo*

Taxonomic remarks: Monotypic

Habit: Crepuscular, semi-fossorial and terrestrial

Habitat: Grasslands in tropical forests and terai

Niche: Wet and tall terai grasslands in elephant grass patches

Elevation: 100-250m

Distribution

Global: Endemic to South Asia

South Asia: Bangladesh, India and Nepal.

Extent of Occurrence: 5,000-20,000 sq km [Bangladesh unknown; India < 20,000; Nepal < 100]

Area of Occupancy: 11-500 sq km [Bangladesh unknown; India < 500; Nepal < 100]

Locations/subpopulations: 8/3, Fragmented

Habitat status: Quantitative and qualitative decrease of the habitat at the rate of 20-50% in last 10 years and a similar trend in the next 10 years is predicted due to conversion of grasslands in to agricultural lands, plantations and intentional fires

Threats

Habitat loss and degradation due to agriculture expansion, non-farm land management, invasive alien species, fires, floods, natural predators, and human disturbance due to research, civil unrest and harvest for local consumption
Trade: Harvesting for local subsistence use

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, literature, indirect studies, informal sightings; inferred; observed; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) ENDANGERED B2ab(ii,iii,iv)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

National Status (IUCN Ver. 3.0)

Bangladesh: Data Deficient

Although reported from Bangladesh, the exact location is not known.

India: Endangered B2ab(ii,iii,iv)

Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Nepal: Critically Endangered

B1ab(ii,iii,iv)+2ab(ii,iii,iv)

Restricted in extent of occurrence and area of occupancy, single location with major threats affecting habitat area and quality. The location is fragmented from the neighbouring country, hence status retained.

Wildlife Legislation:

Bangladesh: None

India: Schedule I (Part 1) of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: Schedule I of the National Parks and Wildlife Conservation measures Act, 1973

CITES: Appendix I

Presence in Protected Areas

India

Assam: Barnodi WS, Manas WS Madhya Pradesh: Kanha NP Uttar Pradesh: Dudhwa NP West Bengal: Jaldapara WS

Nepal

Far Western Nepal: Royal Shukla Phanta WR

Recommendations

Research: Survey

Management: Monitoring, habitat management, public awareness

Conservation measures: Needed: Captive breeding programme

Captive stocks: None

Comments

Kanha National Park, Madhya Pradesh records need verification (S.S. Saha *pers. comm.*). Probably also in Bhutan (Srinivasulu *et al.*, 2004)

Sources

Khan, 1982; Ghosh & Bhattacharyya (1995a); Sarker & Sarker, 1988; Shrestha, 1997; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: C. Srinivasulu, S.S. Saha

Recent Field Studies

Bangladesh

Oliver, W., Terai region in Uttar Pradesh, West Bengal, Nepal and Bangladesh, 1985, Status survey

India

Maheswaran, G., Jaldapara wildlife sanctuary, 2000-2001 & 2003, Status survey and ecological studies

Maheswaran, G., Dudhwa National park, 1995-1997, Status survey

Oliver, W., Terai region in Uttar Pradesh, West Bengal, Nepal and Bangladesh, 1985, Status survey

Nepal

Bell, D., Royal Shukla Phanta Wildlife Reserve, Biology and Conservation measures studies

Oliver, W., Terai region in Uttar Pradesh, West Bengal, Nepal and Bangladesh, 1985, Status survey

Distribution of *Caprolagus hispidus* (Pearson, 1839) (Endemic to Bangladesh, India and Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH				
Mymensingh				
Jamalpur	-	-	Trop. G.	Khan, 1982; Sarker & Sarker, 1988; in foothills of Garo Hills
INDIA				
Assam				
Barpeta & Bongaigaon			Trop. G.	S.S. Saha (pers. comm.)
Manas WS				
Darang			Trop. G.	S.S. Saha (pers. comm.) c. 26°56' N & 91°50' E
Barnodi WS				
Madhya Pradesh				
Mandia & Balaghat			Trop. G.	Ghosh & Bhattacharyya, (1995a); Identification needs to be verified (C. Srinivasulu, pers. comm.)
Kanha NP				
Uttar Pradesh				
Lakhimpur-Kheri			Trop. G.	G. Maheswaran, BIS; Affects tall wet grasslands
Dudhwa NP				
West Bengal				
Jalpaiguri	26°18'	89°28'	Trop. G.	G. Maheswaran, BIS; S.S. Saha (pers. comm.); Affects tall wet grasslands
Jaldapara WS				
NEPAL				
Far Western Nepal				
Shukla Phanta			Trop. G.	Shrestha, 1997

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Caprolagus hispidus* (Pearson, 1839) is known in Bangladesh, India and Nepal



***Lepus capensis* Linnaeus, 1758**

Synonyms: *Lepus arabicus* Ehrenberg, 1833; *Lepus tibetanus* Waterhouse, 1841

Order: Lagomorpha

Family: Leporidae

Common names: English: Cape Hare

Taxonomic remarks: Ellerman & Morrison-Scott (1951) treated *Lepus arabicus* Erhenberg, 1833 distinct from *Lepus capensis* Linnaeus, 1758 a trend followed by many authors. However, Hoffmann (1993) synonymised the former name with the latter following Corbet (1978), Angermann (1983) and, Harrison and Bates (1991). Gromov and Baranova (1981) included *Lepus tibetanus* Waterhouse, 1841 under *Lepus tolai* Pallas, 1778 that is presently considered as subspecies of *Lepus capensis* Linnaeus, 1758 by Ellerman and Morrison-Scott (1951). Sokolov and Orlov (1980) treated *Lepus tibetanus* Waterhouse, 1841 as a distinct species. Chakraborty (1977, 1983) reported the occurrence of *Lepus arabicus* Erhenberg, 1833 basing on a specimen collected in Jammu and Kashmir

Habit: Diurnal, terrestrial, gregarious

Habitat: Montane subtropical forest

Niche: High alpine scrub and pine forest

Elevation: 600-5,200m

Distribution

Global: Africa (throughout), Afghanistan, China, India, Iran, Iraq, Pakistan, Saudi Arabia

South Asia: India and Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Pakistan > 2,000]

Locations/subpopulations: 20/1, Fragmented

Habitat status: Quantitative and qualitative decrease of the habitat at the rate of < 20 % in last 20 years and a similar trend in the next 20 years is predicted due to habitat destruction

Threats

Habitat loss and degradation and civil unrest

Trade: Harvesting for local subsistence use and fur trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, informal sightings, field study, literature, museum records; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widespread species in Pakistan and Jammu & Kashmir, India. Appears to be commoner in its range

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

LEAST CONCERN in South Asia

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management, public awareness

Captive stocks: None

Comments

None

Sources

Chakraborty, 1983; Roberts, 1997; Srinivasulu *et al.*, 2004

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: S. Chakraborty, C. Srinivasulu

Recent Field Studies

None

Locations from where *Lepus capensis* Linnaeus, 1758 is known in India and Pakistan



Distribution of *Lepus capensis* Linnaeus, 1758 in South Asia (India and Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jammu & Kashmir				
Gilgit	36°19'	74°41'	Temp. F. Roberts, (1997)	
Baltistan	35°45'	74°30'	Temp. F. Roberts, (1997)	
Hunza	36°30'	75°30'	Temp. F. Roberts, (1997)	
Jammu				
Jajjhar Kotli	32°53'	74°58'	Temp. F. Chakraborty, 1983	
Ladakh				
Ladakh	34°00'	78°00'	Temp. F. Chakraborty, 1988	
Muzaffrabad				
Muzaffrabad	34°45'	74°00'	Temp. F. Roberts, (1997)	
PAKISTAN				
Baluchistan				
Chaman				
Chaman	30°55'	65°26'	Temp. F. Roberts, (1997); Throughout the region	
Kelat				
Kelat	27°30'	66°00'	Temp. F. Roberts, (1997); Throughout the region	
Loralai				
Loralai	30°22'	68°26'	Temp. F. Roberts, (1997); Throughout the region	
Panjgur				
Panjgur	26°40'	64°15'	Temp. F. Roberts, (1997); Throughout the region	
Zhob				
Zhob	31°21'	69°28'	Temp. F. Roberts, (1997); Throughout the region	

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Lepus nigricollis Cuvier, 1823

LEAST CONCERN

Synonyms: *Lepus ruficaudatus* Geoffroy, l., 1826; *Lepus macrotus* Hodgson, 1840; *Lepus aryabatensis* (*nom. nud.*) Hodgson, 1844; *Lepus joongshaiensis* Murray, 1854; *Lepus tytleri* Tytler, 1854; *Lepus dayanus* Blanford, 1874; *Lepus simcoxi* Wroughton, 1912; *Lepus mahadeva* Wroughton & Ryley, 1913; *Lepus singhala* Wroughton, 1915; *Lepus cutchensis* Kloss, 1918; *Lepus rajput* Wroughton, 1918; *Lepus sadiya* Kloss, 1918

Order: Lagomorpha

Family: Leporidae

Common names: English: Black-naped Hare; Bengali:

Khargosh; Gujarati: *Saslu*; Hindi: *Khargosh*; Oriya: *Thekua*; Telugu: *Kundelu*; Urdu: *Khargosh*

Taxonomic remarks: Ellerman and Morrison-Scott (1951), and Corbet and Hill (1992) treated the taxon *singhala* Wroughton, 1915 as a subspecies of *Lepus nigricollis* Cuvier, 1823.

However, it is treated as a synonym by Hoffmann (1993)

Habit: Crepuscular and nocturnal, terrestrial

Habitat: Tropical dry deciduous forest, scrublands, grasslands, hot and cold deserts, semi arid tracts, montane subtropical forest, pasturelands and rural gardens

Niche: Rocky areas in scrub jungles and forest, keeps to bushes

Elevation: 50-4,500m

Distribution

Global: Endemic to South Asia

South Asia: Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bangladesh > 20,000; Bhutan unknown; India > 20,000; Nepal > 20,000; Pakistan > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh > 2,000; Bhutan unknown; India > 2,000; Nepal > 2,000; Pakistan > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative decrease of the habitat at the rate of < 20% in last 50 years and a similar trend in the next 50 years is predicted due to habitat fragmentation and destruction, and also hunting and domestic predators

Threats

Habitat loss and degradation due to non-farm management, harvest by locals for subsistence use, natural calamities, competitors (e.g. -livestock), natural and domestic predators and intentional forest fires

Trade: Harvesting for local subsistence use and sale

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Census monitoring, indirect information, informal sightings, field study, literature, museum records; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) LEAST CONCERN

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bhutan: Data Deficient

Rationale: Although known to occur in Bhutan, the locality is unknown.

Bangladesh: Least Concern

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Eturnagaram WS, Gundla Brahmeshwaram Metta WS, Kasu Brahmananda Reddy NP, Kawal WS, Kinnarsani WS, Mahaveer Harina Vanasthali NP, Manjira WS, Mrugvani NP, Nagarjunsagar-Srisailem TR, Nelapattu WS, Pocharam WS, Pranahita WS, Pulicat WS, Siwaram WS; Sri Venkateswara NP

Bihar: Kaimur WS **Maharashtra:** Sanjay Gandhi NP **Orissa:** Chandaka-Dampara WS

Rajasthan: Desert NP **Uttar Pradesh:** Dudhwa NP **West Bengal:** Jaldapara WS

Recommendations

Research: Taxonomic research

Management: Public awareness

Captive stocks: None

Comments

This species is introduced in Indonesia (Java), Seychelles and Mauritius (Corbet & Hill, 1992)

Sources

Corbet & Hill, 1992; Chakraborty and Agarwal, 2000; Ghose and Bhattacharyya, 1995a; Tiwari *et al.*, 2002; Khan, 1982; Phillips, 1981; Sarker and Sarker, 1988; Roberts, 1997; Srinivasulu *et al.*, 2004; Yazdani *et al.*, 1992; Wroughton, 1915; BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu, G. Maheswaran

Compilers

S. Chakraborty, C. Srinivasulu, Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, Meena Venkataraman, Wes Sechrest, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, S.S. Saha, B.A. Daniel, Latha Ravikumar

Reviewers: S. Chakraborty, C. Srinivasulu, T.P.

Bhattacharyya, S.S. Saha

Recent Field Studies

Maheswaran, G., Jaldapara Wildlife Sanctuary, 2000-2001 & 2003, Status survey and ecological studies

Maheswaran, G., Dudhwa National Park, 1995-1997, Status survey

Srinivasulu, C. and Bhargavi Srinivasulu, 1996 onwards, Throughout Andhra Pradesh, Status of mammals of Andhra Pradesh

Srinivasulu, C. and Bhargavi Srinivasulu, 2002 onwards,

Kurnool grasslands, Ranga Reddy District, Hyderabad and Secunderbad environs, Nagarjunasagar-Srisailem Tiger Reserve, Non-Volant Small Mammals of select areas of Andhra Pradesh

Srinivasulu, C. Kasu Brahmananda Reddy National Park, 2002 onwards, Faunal inventorying of KBR National Park (in collaboration with FBS/ Zoological Survey of India, Hyderabad)

Srinivasulu, C. Nagarjunasagar Srisailem Tiger Reserve, 1996 onwards, Biodiversity of Nalamalla Hills, Eastern Ghats

Locations from where *Lepus nigricollis* Cuvier, 1823 is known in Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka



Distribution of *Lepus nigricollis* Cuvier, 1823 (Endemic to Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Throughout	-	-	-	Khan, 1982; Sarker & Sarker, 1988	Kasu Brahmananda Reddy NP	17°22'	78°28'	Trop. F.	Srinivasulu <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
BHUTAN									
? locations	-	-	-	S. Chakraborty (pers. comm.); throughout lowland areas bordering India, not so common	Karimnagar	18°30'	79°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Karimnagar	18°43'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Mahadevapur	18°06'	78°81'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Siddipet				
INDIA									
Andhra Pradesh									
Adilabad	19°30'	78°30'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Khammam	17°33'	80°38'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Adilabad	19°02'	79°30'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kothagudem				
Bellampally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Krishna	16°31'	80°37'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chennur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; also in many locations in Pranaahita WS	Vijaywada				
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; also in many locations in Kawal WS	Kurool				
Nirmal	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Atmakur	15°53'	78°35'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Utnoor	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kurool	15°35'	78°00'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Anantapur			Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nandyal	15°59'	78°29'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Gooly	15°07'	77°38'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahanandi	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chittoor			Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rollapadu WS	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in grassland habitat and agriculture fields; north of Nandyal (15°59' N & 78°29' E)
Trupati	13°39'	79°25'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; also in many locations in Sri Venkateshwara NP and WS	Mahbubnagar	16°39'	80°08'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah			Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Achampet	16°46'	78°09'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chintaraj pall	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); in Palkonda Hills	Jadcherla	16°30'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah	14°28'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahbubnagar	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; also in many locations in Nagarjunasagar Srisaillam TR
Dasaraloddi	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); in Palkonda Hills	Mannanur				
Madhavarm	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); in Vontimitta Range	Medak	17°45'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; also in many locations in Pocharam WS
East Godavari			Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Medak				
Rajahmundry	16°59'	81°47'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Narsapur	17°44'	78°16'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Guntur			Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sangareddy	17°37'	78°05'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Macherla	16°29'	79°26'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Toopran	17°50'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Nagarjunakonda	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); in Nagarjunasagar Srisaillam TR	Nalgonda	16°42'	78°56'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad			Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Devarakonda	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Hyderabad	17°22'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nellore	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Doravarisatram (13°49' N & 79°57' E)
					Nelapattu WS	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Doravarisatram (13°49' N & 79°57' E)

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Distribution of *Lepus nigricollis* Cuvier, 1823 (Endemic to Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
Gudur	14°08'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Gujarat				
Nellore	15°05'	79°35'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Banaskantha	24°15'	72°10'	Trop. F.	Chakraborty & Agrawal (2000)
Nizamabad					Deesa	-	-	Trop. F.	Chakraborty & Agrawal (2000)
Kamareddy	18°19'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Lunwa	24°10'	72°26'	Trop. F.	Chakraborty & Agrawal (2000)
Prakasam					Palanpur				
Diguvametta	15°23'	78°53'	Trop. F.	Chakraborty <i>et al.</i> (2004); in Gundla Brahmeshwararam WS	Kachch	23°16'	69°40'	Trop. F.	Agrawal (2000)
Isukagundam	15°35'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwararam WS	Bhuj				
Maddipenta	15°44'	78°47'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwararam WS	Junagadh				
Rangareddy					Baradia	-	-	Trop. F.	Chakraborty & Agrawal (2000)
Medchal	17°37'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rajkot				
Vikarabad	17°20'	77°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rajkot	22°18'	70°47'	Trop. F.	Chakraborty & Agrawal (2000)
Srikakulam					Yankaner	22°37'	70°56'	Trop. F.	Chakraborty & Agrawal (2000)
Tekkali	18°37'	84°14'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Surendranagar				
Vishakapatham					Moti				
Araku	18°20'	82°52'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	and Banjana				
Vishakapatham	17°42'	83°18'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Karnataka				
Vizianagaram					Bandipur WS			Trop. F.	M.S. Pradhan (pers. comm.) in many locations throughout the state
Vizianagaram	18°07'	83°25'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Warnagal					Kodagu & Mysore				
Etur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Eturagaram WS; north of Pasra (18°12' N & 80°10' E)	Nagarhole	-	-	Trop. F.	Pradhan & Kurup (2001); in Nagarhole NP
Pasra	18°12'	80°10'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kerala				
Tadwai	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Eturagaram WS; north of Pasra (18°12' N & 80°10' E)	Idukki				
Warangal	18°00'	79°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Eravikulam NP	-	-	Trop. F.	Pradhan (2002); in high altitude grassland patches; many locations in the state (M.S. Pradhan, pers. comm.)
West Godavari					Meghalaya				
Rampa-chodavaram	17°27'	81°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	South Garo Hills	22°15'	88°52'	Trop. F.	Das <i>et al.</i> (1995); also at Baraphani, Rhi-Boi district, and many locations in state (T.P. Bhattacharyya, pers. comm.)
Bihar					Baghmara				
Rohtas					Madhya Pradesh				
Kaimur WS	-	-	Trop. F.	Bhattacharyya & Ghosh (2004); in many localities	Mandla & Balaghat				
					Kanha NP	-	-	Trop. G.	Ghose & Bhattacharyya, (1995a); in many locations in the state (T.P. Bhattacharyya, pers. comm.)

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Distribution of *Lepus nigricollis* Cuvier, 1823 (Endemic to Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
Maharashtra					North West Frontier Province	-	-	Trop. F. Roberts (1997); throughout all districts in southern areas	
Mumbai	-	-	Trop. F.	Yazdani <i>et al.</i> (1992); many locations in the state (M.S. Pradhan, pers. comm.)	Punjab Sind	-	-	Trop. F. Roberts (1997); throughout all districts	
Sanjay Gandhi NP	-	-			SRI LANKA Uva Province	-	-	Trop. F. Wroughton (1915); Phillips (1981); Phillips (1981) states that it occurs throughout the island in suitable habitats	
Orissa									
Khurda and Cuttack	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), near about 8°29' N and 76°59' E; many locations in the state (S.S. Saha, pers. comm.)					
Ambakhali	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), near about 8°29' N and 76°59' E					
Bholla	-	-							
Rajasthan									
Barmer and Jaisalmer	-	-	D.	Kankane (2004); many locations in the state (S. Chakraborty, pers. comm.)					
Desert NP	-	-							
Tamil Nadu									
Nilgiris	11°24'	76°42'	Trop. F.	Also in many locations in the state (M.S. Pradhan, pers. comm.)					
Ooty									
Uttar Pradesh									
Agra	27°11'	78°01'	Trop. F.	Also in many localities in the state (S. Chakraborty, pers. comm.)					
Agra									
West Bengal									
Bankura	23°15'	87°15'	Trop. F.	Also in many localities in the state (S. Chakraborty, pers. comm.)					
Bankura									
NEPAL									
? location	-	-	-	Shreshta (1997); no exact location provided, treated as rare					
PAKISTAN									
Baluchistan	-	-	Trop. F. Roberts (1997); throughout all districts						
			Semi D.						

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Lepus oiostolus* Hodgson, 1840**

Synonyms: *Lepus pallipes* Hodgson, 1842; *Lepus hypsibius* Blanford, 1875

Order: Lagomorpha

Family: Leporidae

Common names: English: Woolly Hare

Taxonomic remarks: None

Habit: Diurnal, terrestrial, gregarious

Habitat: Montane subtropical grassland

Niche: Open grassland and scrubland in trans-Himalayan alpine zones; in holes, burrows, among rocks and crevices

Elevation: 3,000-5,000m

Distribution

Global: China, India, Nepal

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India < 5,000; Nepal > 20,000]

Area of Occupancy: > 2,001 sq km [India < 500; Nepal > 2,000]

Locations/subpopulations: 6/4, Fragmented

Habitat status: Quantitative and qualitative decrease of the habitat at the rate of < 20% in last 15 years and a similar trend in the next 10 years is predicted due to habitat destruction and fuelwood collection

Threats

Habitat loss and degradation due to small-scale logging, fuelwood collection, and harvesting by locals for subsistence use

Trade: Harvesting for local subsistence use and fur trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, field study, literature, museum records; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Endangered B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. The neighbouring populations are fragmented with no possibility of migration, hence status is retained.

Nepal: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Nepal

Annapurna CA, Makalu Barun NP, Sagarmatha NP, Shey

LEAST CONCERN in South Asia

Phuskondo NP

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management, public awareness

Captive stocks: None

Comments

None

Sources

Chakraborty, 1983; Shrestha, 1997; Srinivasulu *et al.*, 2004

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: S. Chakraborty, C. Srinivasulu

Recent Field Studies

None

Locations from where *Lepus oiostolus* Hodgson, 1840 is known in India and Nepal



Distribution of *Lepus oiostolus* Hodgson, 1840 in South Asia (India and Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jammu & Kashmir				
Ladkah	34°15'	78°35'	Temp. F. Chakraborty, 1983;	alt. 4,560m
Chang Chen Mo Valley	33°36'	78°39'	Temp. F. Chakraborty, 1983;	alt. 4,260m
NEPAL				
Eastern Nepal				
Makalu Barun NP	27°55'	87°08'	Temp. F. Shrestha, 1997	
Sagarmatha NP	27°20'	86°40'	Temp. F. Shrestha, 1997	
Mid Western Nepal				
Shey Phuskondo NP	-	-	Temp. F. Shrestha, 1997;	c. 29°04' N & 82°57' E
Western Nepal				
Annapurna CA	28°35'	83°57'	Temp. F. Shrestha, 1997	

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Lepus tolai* Pallas, 1778**

Synonyms: ? *Lepus biddulphi* Blanford, 1877

Order: Lagomorpha

Family: Leporidae

Common names: English: Tolai Hare

Taxonomic remarks: Ellerman and Morrison-Scott (1951) considered *Lepus tolai* Pallas, 1778 as subspecies of *Lepus capensis* Linnaeus, 1758 that was later synonymised by Corbet (1978). However, in the recent years these two are considered specifically distinct (Hoffmann, 1993). We put on record this taxon from India following the record of *Lepus biddulphi* Blanford, 1877 described basing on a specimen collected from Yasin, Gilgit in Pakistan-occupied-Kashmir, India. This taxon had been earlier synonymised with *Lepus capensis tibetanus* Waterhouse, 1871 by Ellerman and Morrison-Scott (1951) but later has been synonymised with *Lepus tolai* Pallas, 1778 by Hoffmann (1993)

Habit: Unknown

Habitat: Montane temperate forest

Niche: Not known, inhabits pine forests

Elevation: Not known

Distribution

Global: Afghanistan, China, India, Iran, Kazakhstan, Mongolia, Russia, Tajikistan

South Asia: India

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: 1 [Presence of this taxon is based on *Lepus biddulphi* from type locality, which is in Gilgit, Jammu & Kashmir, India]

Habitat status: Unknown

Threats

Unknown

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, museum records; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **DATA DEFICIENT in South Asia**

Rationale: Due to taxonomic uncertainty.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: None

Captive stocks: None

DATA DEFICIENT in South Asia

Comments

The present day taxonomic status of this species needs to be ascertained. Its presence in South Asia is based on a single specimen that was described as *Lepus biddulphi* Blanford, 1877 a name that was subsequently synonymised to *Lepus tolai* Pallas, 1778 (Sujit Chakraborty, pers. comm.)

Sources

Blanford, 1877; Ellerman & Morrison-Scott, 1951; Srinivasulu *et al.*, 2004

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, W.L.D.P.T.S. de A. Goonatilake, B.A. Daniel

Reviewers: S. Chakraborty, C. Srinivasulu

Recent Field Studies

None

Location from where *Lepus tolai* Pallas, 1778 is known in India



Distribution of *Lepus tolai* Pallas, 1778 in South Asia (India) from literature and field studies

Distribution in
South Asia

Lat. Long.

Habitat

Notes / Sources

INDIA

Jammu & Kashmir

Gilgit

Gilgit

35°45'

74°30'

-

Blanford, 1877; known only from type locality of *Lepus biddulphi* in India

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Ochotona curzoniae* (Hodgson, 1858)**

Synonyms: *Lagomys curzoniae* Hodgson, 1858; *Ochotona dauurica curzoniae* (Hodgson, 1858)

Order: Lagomorpha

Family: Ochotonidae

Common names: English: Black-lipped Pika

Taxonomic remarks: Belongs to subgenus *Ochotona* Link, 1795. Ellerman and Morrison-Scott (1951), and Mitchell (1978) treated this taxon as a subspecies of *Ochotona dauurica* Pallas, 1776. However, Hoffmann (1993) treated the above mentioned taxa separately basing on Vorontsov and Ivanitsakaya (1973), and, Zhou and Xia (1981)

Habit: Terrestrial, semi-fossorial

Habitat: Subtropical and tropical montane forests

Niche: Inhabits high alpine desert and plateau in open grassland and scrubland of Caragana juniper scrubs

Elevation: Above 3,000m

Distribution

Global: China, India, Nepal

South Asia: India, Nepal

Extent of Occurrence: 5,001-20,000 sq km [India < 20,000; Nepal < 20,000]

Area of Occupancy: 500-2,001 sq km [India unknown; Nepal < 500]

Locations/subpopulations: 2/2, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of < 10% during last 5 years and also a similar trend projected for the next 5 years due to expansion of human settlements and fuel wood collection

Threats

Habitat loss due to small-scale logging and fuel wood collection

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, indirect information; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) VULNERABLE ↓ NEAR THREATENED in South Asia B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

National Status (IUCN Ver 3.0)

India: Data Deficient

Rationale: Exact location not known.

Nepal: Endangered ↓ Vulnerable B2ab(iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

NEAR THREATENED in South Asia

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Nepal

Western Nepal: Annapurna CA

Recommendations

Research: Survey, taxonomic research

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Shrestha, 1997; Srinivasulu *et al.*, 2004

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, W.L.D.P.T.S de A. Goonatilake, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Ochotona curzoniae* (Hodgson, 1858) is known in India and Nepal



Distribution of *Ochotona curzoniae* (Hodgson, 1858) in South Asia (India and Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Sikkim	-	-	-	S.S. Saha (pers. comm.)
? location				
NEPAL				
Western Nepal	28°35'	83°57'	Temp. F.	Shrestha (1997)
Annapurna CA				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Ochotona forresti* Thomas, 1923**

Synonyms: *Ochotona pusilla forresti* (Thomas, 1923); *Ochotona roylei forresti* (Thomas, 1923); *Ochotona thibetana forresti* (Thomas, 1923)

Order: Lagomorpha

Family: Ochotonidae

Common names: English: Forrest's Pika

Taxonomic remarks: Belongs to subgenus *Ochotona* Link, 1795. Ellerman and Morrison-Scott (1951) treated this taxon as a subspecies of *Ochotona pusilla* Pallas, 1769. Corbet (1978) included it under *Ochotona roylei* (Ogliby, 1839), while Gureev (1964) included it under *Ochotona thibetana* (Milne-Edwards, 1871). However, Hoffmann (1993) treated this taxon as a distinct species following Smith *et al.* (1990).

Habit: Terrestrial, semi-fossorial

Habitat: Subtropical and tropical montane forests

Niche: Inhabits high altitude meadows and forested slopes

Elevation: 2,600-4,400m

Distribution

Global: Bhutan, China, India, Myanmar

South Asia: Bhutan, India

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: No exact location of its occurrence is known

Habitat status: Unknown

Threats

Threats not known for this species or of the habitats where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) DATA DEFICIENT in South Asia

Rationale: Although reported from South Asia, its exact location is not known.

National Status (IUCN Ver. 3.0)

Bhutan: Data Deficient

India: Data Deficient

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Monitoring

Conservation measures: Needed: Captive breeding programme for benign introductions

DATA DEFICIENT in South Asia

Captive stocks: None

Comments

Srinivasulu *et al.* (2004) opined that this species may also be occurring in Eastern Nepal

Sources

Ellerman & Morrison-Scott, 1951; Hoffman, 1993; Srinivasulu *et al.*, 2004

Compilers

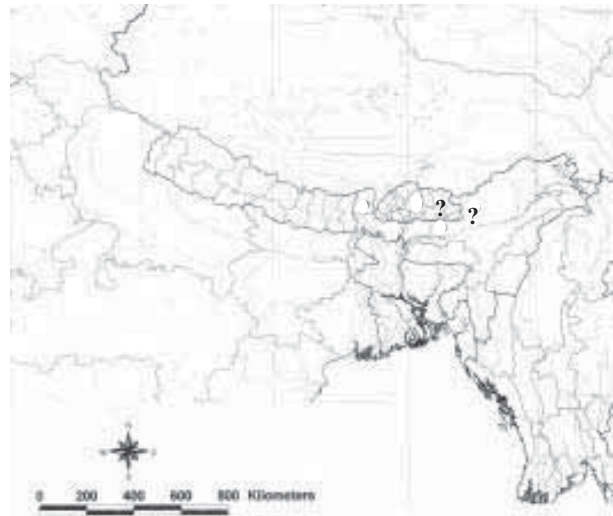
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Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Ochotona forresti* Thomas, 1923 is known in Bhutan and India



Distribution of *Ochotona forresti* Thomas, 1923 in South Asia (Bhutan and India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
BHUTAN				
? location	-	-	-	Hoffman, (1993); Srinivasulu <i>et al.</i> , (2004); No exact location given
INDIA				
Arunachal Pradesh				
? location	-	-	-	Ellerman & Morrison-Scott, (1951); No exact location given
Assam				
? location	-	-	-	Ellerman & Morrison-Scott, (1951); No exact location given
Sikkim				
? location	-	-	-	Hoffman, 1993; Srinivasulu <i>et al.</i> , 2004; No exact location given

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Ochotona himalayana* Feng, 1973**

NEAR THREATENED in South Asia

Synonyms: *Ochotona roylei himalayana* (Feng, 1973)

Order: Lagomorpha

Family: Ochotonidae

Common names: English: Himalayan Pika

Taxonomic remarks: Belongs to subgenus *Ochotona* Link, 1795. Corbet (1978) and Weston (1982) treated this taxon as a subspecies of *Ochotona roylei* (Ogilby, 1839). However, studies by Feng and Zheng (1985) and Feng *et al.* (1986) show that *Ochotona himalayana* Feng, 1973 may be a distinct species Hoffmann (1993)

Habit: Diurnal, terrestrial and semi-fossorial

Habitat: Subtropical and tropical montane forests

Niche: Rocky areas bordered by evergreen or broad leaved forests

Elevation: 2,400-4,200m

Distribution

Global: China, Nepal

South Asia: Nepal

Extent of Occurrence: 101-500 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 1

Habitat status: Unknown

Threats

Threats not known for this species of habitats where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE** ↓ **NEAR THREATENED in South Asia D2**

Rationale: Restricted in area of occupancy to only one locations in South Asia. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Nepal

Eastern Nepal: Sagarmatha NP

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management

Conservation measures: *Needed*: Captive breeding programme for benign introductions

Captive stocks: None

Comments

Authenticity of this species identification and report from Sagarmatha National Park in Nepal (Shrestha, 1997) is doubtful (T.P. Bhattacharyya and S. Chakraborty, pers. comm.)

Sources

Shrestha, 1997; Srinivasulu *et al.*, 2004

Compilers

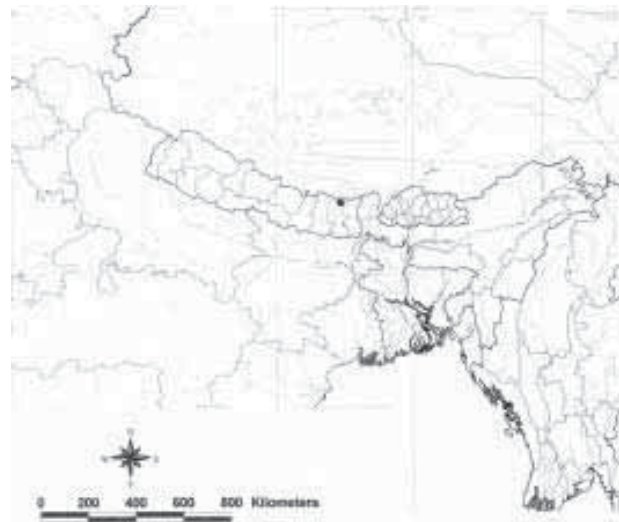
S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, W.L.D.P.T.S de A. Goonatilake, Wes Sechrest, B.A. Daniel

Reviewers: S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu

Recent Field Studies

None

Location from where *Ochotona himalayana* Feng, 1973 is known in Nepal



Distribution of *Ochotona himalayana* Feng, 1973 in South Asia (Nepal) from literature and field studies

Distribution in
South Asia

Lat.

Long.

Habitat

Notes / Sources

NEPAL

Western Nepal

Annapurna CA

28°35'

83°57'

Temp. F. Shrestha, 1997; taxon identification
doubtful

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Ochotona ladacensis* (Gunther, 1875)**

Synonyms: *Lagomys ladacensis* Gunther, 1875

Order: Lagomorpha

Family: Ochotonidae

Common names: English: Ladakh Pika

Taxonomic remarks: Belongs to subgenus *Pika* Lacépède, 1799. Ellerman and Morrison-Scott (1951) and subsequent authors treated it as a distinct species

Habit: Diurnal, terrestrial and semi-fossorial

Habitat: Subtropical and tropical montane forests

Niche: Inhabits high altitude meadows and scrubs

Elevation: 2,500-4,500m

Distribution

Global: China, India, Pakistan

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan < 5,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Pakistan unknown]

Locations/subpopulations: 7/3, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of < 20% during last 10 years and also a similar trend projected for the next 10 years due to agriculture practices and use of pesticides

Threats

Pest control activities

Trade: Unknown

Population

Generation time: Unknown

Total population: Declining

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Data Deficient

Rationale: Exact location is not known.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management

Captive stocks: None

LEAST CONCERN in South Asia

Comments

Pakistan localities are to be determined. Hoffman (1993) and Srinivasulu *et al.* (2004) include Pakistan in its distributional range basing on Ellerman & Morrison-Scott (1951). Probably not scarce, but poorly known, may be affected by control measures (Hoffman, 1993)

Sources

Chakraborty, 1983; Ellerman and Morrison-Scott, 1951; Hoffman, 1993; Srinivasulu *et al.*, 2004

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, W.L.D.P.T.S de A. Goonatilake, Wes Sechrest, P.O. Nameer, B.A. Daniel

Reviewers: S. Chakraborty, C. Srinivasulu

Recent Field Studies

None

Locations from where *Ochotona ladacensis* (Gunther, 1875) is known in India and Pakistan



Distribution of *Ochotona ladacensis* (Gunther, 1875) in South Asia (India and Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jammu & Kashmir				
Ladakh				
Chagra	34°05'	78°29'	Mon. St. F.	Chakraborty (1983)
Gogra	-	-	Mon. St. F.	Chakraborty (1983)
Kazilga	-	-	Mon. St. F.	Chakraborty (1983)
Luksang	-	-	Mon. St. F.	Chakraborty (1983); could be Lukung (34°00'N & 78°24' E)
Leh	34°10'	77°35'	Mon. St. F.	Chakraborty (1983)
Rimdi	34°08'	78°39'	Mon. St. F.	Chakraborty (1983)
PAKISTAN				
North Western Frontier Province				
? location	-	-	-	Ellerman & Morrison-Scott (1951)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Ochotona macrotis* (Gunther, 1875)**

LEAST CONCERN in South Asia

Synonyms: *Lagomys macrotis* Gunther, 1875; *Lagomys auritus* Blanford, 1875; *Lagomys griseus* Blanford, 1875; *Ochotona roylei baltina* Thomas, 1922; *Ochotona wollastoni* Thomas & Hinton, 1922

Order: Lagomorpha

Family: Ochotonidae

Common names: English: Large-eared Pika

Taxonomic remarks: Ellerman and Morrison-Scott (1951) list two subspecies from the region. Gureev (1964), Corbet (1978) and Roberts (1997) listed it under *Ochotona roylei* (Ogilby, 1839), while Hoffmann (1993) following Weston (1982) and Feng *et al.* (1986) consider it as a distinct species. The taxon *Ochotona roylei baltina* Thomas, 1922 has been synonymised with *Ochotona macrotis* following Hoffmann (1993)

Habit: Diurnal, terrestrial and semi-fossorial, colonial

Habitat: Subtropical and tropical montane forests

Niche: Inhabits high altitude rocky temperate to alpine meadows along or near water sources

Elevation: 2,000-3,500m

Distribution

Global: Afghanistan, Bhutan, China, India, Kazakhstan, Kirgystan, Pakistan, Nepal, Tajikistan

South Asia: Bhutan, India, Pakistan, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan unknown;

India > 20,000; Pakistan < 20,000; Nepal < 5,000]

Area of Occupancy: > 2,001 sq km [Bhutan unknown; India > 2,000; Pakistan < 2,000; Nepal < 500]

Locations/subpopulations: 11/6, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of < 20% during last 10 years and also a similar trend projected for the next 10 years due to agriculture practices and upland grazing by livestock

Threats

Upland grazing by livestock and natural predators

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, museum record; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bhutan: Data Deficient

Rationale: Exact location not known

India: Least Concern

Nepal: Endangered ↓ Vulnerable B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South

Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Pakistan: Vulnerable ↓ Near Threatened

B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management

Captive stocks: None

Comments

None

Sources

Chakraborty, 1983; Ellerman and Morrison-Scott, 1951; Mishra *et al.*, 2004; Roberts, 1997; Shrestha, 1997; Srinivasulu *et al.*, 2004

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, W.L.D.P.T.S de A. Goonatilake, Wes Sechrest, P.O. Nameer, B.A. Daniel

Reviewers: S. Chakraborty, C. Srinivasulu

Recent Field Studies

None

Distribution of *Ochotona macrotis* (Gunther, 1875) in South Asia (Bhutan, India, Nepal and Pakistan) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Habitat	Notes / Sources
BHUTAN ? Location					Swat Kohistan Mahodan Lake	Mon. St. F.	Roberts (1997)
INDIA							
Arunachal Pradesh							
West Kameng	27°36'	92°02'	Mon. St. F.	Mishra et al. (2004)			
Mago Chu Valley							
Jammu & Kashmir							
Gilgit	35°45'	74°30'	Mon. St. F.	Chakraborty (1983)			
Gilgit							
Ladakh							
Kharbu	34°33'	75°59'	Mon. St. F.	Chakraborty (1983)			
Leh	34°10'	77°35'	Mon. St. F.	Chakraborty (1983)			
Lukung	34°00'	78°24'	Mon. St. F.	Chakraborty (1983)			
Muzaffrabad							
Kishanganga Valley	34°33'	75°02'	Mon. St. F.	Chakraborty (1983)			
NEPAL							
Central Nepal							
Gosiakund	28°05'	85°25'	Mon. St. F.	Shrestha (1997)			
PAKISTAN							
North Western Frontier Province							
Duditsar Lake	-	-	Mon. St. F.	Roberts (1997)			
Kaghan							
Kaghan	34°25'	73°17'	Mon. St. F.	Roberts (1997); near Lakshar Lake			

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Ochotona macrotis* (Gunther, 1875) is known in Bhutan, India, Nepal and Pakistan



***Ochotona nubrica* Thomas, 1922**

Synonyms: *Lagomys hodgsoni* Blyth, 1841; *Ochotona pusilla nubrica* (Thomas, 1922)

Order: Lagomorpha

Family: Ochotonidae

Common names: English: Nubra Pika

Taxonomic remarks: Ellerman and Morrison-Scott (1951)

treated this taxon as a subspecies of *Ochotona pusilla* Pallas, 1769. Hoffmann (1993) treated it as a distinct species following Smith *et al.* (1990). The taxon *Lagomys hodgsoni* Blyth, 1841, that had been treated as a synonym of *Ochotona roylei* (Ogilby, 1839) by Ellerman and Morrison-Scott (1951) has been presently synonymised with *Ochotona nubrica* Thomas, 1922 following Hoffmann (1993)

Habit: Diurnal, terrestrial and semi-fossorial, colonial

Habitat: Subtropical and tropical montane forests

Niche: Inhabits high altitude montane scrub and alpine meadows

Elevation: 2,500-3,500m

Distribution

Global: China, India, Nepal

South Asia: India, Nepal

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: Unknown

Habitat status: Unknown

Threats

Threats not known for this species or the habitats where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **DATA DEFICIENT in South Asia**

Rationale: Nothing substantial is known about this species in South Asia.

National Status (IUCN Ver. 3.0)

India: Data Deficient

Nepal: Data Deficient

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management

Captive stocks: None

DATA DEFICIENT in South Asia

Comments

None

Sources

Ellerman and Morrison-Scott, 1951; Shrestha, 1997;

Srinivasulu *et al.*, 2004

Compilers

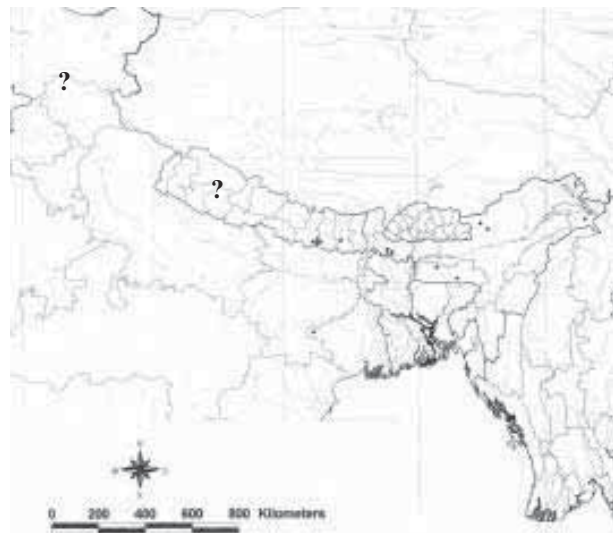
S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, W.L.D.P.T.S de A. Goonatilake, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Ochotona nubrica* Thomas, 1922 is known in India and Nepal



Distribution of *Ochotona nubrica* Thomas, 1922 in South Asia (India and Nepal) from literature and studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jammu & Kashmir				
Ladakh	-	-	-	Ellerman & Morrison-Scott (1951)
Tuggur				
NEPAL				
? Location	-	-	-	Shrestha, 1997

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Ochotona roylei (Ogilby, 1839)

LEAST CONCERN in South Asia

Synonyms: *Lagomys roylei* Ogilby, 1839; *Lagomys nepalensis* Hodgson, 1841; *Ochotona angdawai* Biswas & Khajuria, 1955; *Ochotona mitchelli* Agrawal & Chakraborty, 1971; *Ochotona wardi* Bonhote, 1904

Order: Lagomorpha

Family: Ochotonidae

Common names: English: Royle's Pika

Taxonomic remarks: Ellerman and Morrison-Scott (1951) treated the taxon *Lagomys hodgsoni* Blyth, 1841 as a subspecies of *Ochotona roylei* (Ogilby, 1839). However, the aforementioned taxon was assigned to *Ochotona nubrica* Thomas, 1922 by Hoffmann (1993). The taxon *Ochotona roylei baltina* Thomas, 1922 listed earlier under this taxon had been synonymised with *Ochotona macrotis* (Günther, 1875) (see comments therein) by Hoffmann (1993)

Habit: Diurnal, terrestrial and semi-fossorial, colonial

Habitat: Subtropical and tropical montane forests, and cold deserts

Niche: Inhabits boulder strewn slopes and talus in temperate zone

Elevation: 2,400-4,300m

Distribution

Global: China, India, Nepal, Pakistan

South Asia: India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal > 2,000; Pakistan > 2,000]

Locations/subpopulations: 25/8, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of < 20% during last 10 years and also a similar trend projected for the next 10 years due to agriculture practices, small-scale logging, fuel wood collections and upland grazing by livestock

Threats

Small-scale logging, fuel wood collection, upland grazing by livestock and natural predators

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, informal sightings, literature, museum records; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Uttaranchal: Nanda Devi NP

Nepal

Central Nepal: Lang Tang NP; *Eastern Nepal:* Sagarmatha

NP; *Mid Western Nepal:* Rara NP

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management

Captive stocks: None

Comments

Also reported from Khunjerab NP in Gilgit, India

Sources

Chakraborty, 1983; Roberts, 1997; Shrestha, 1997; Srinivasulu *et al.*, 2004; Tak & Lamba, 1984; Tak, 1997

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, W.L.D.P.T.S de A. Goonatilake, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Ochotona roylei* (Ogilby, 1839) is known in India, Nepal and Pakistan



Distribution of *Ochotona roylei* (Ogilby, 1839) in South Asia (India, Nepal and Pakistan) from literature and field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
INDIA					NEPAL				
Jammu & Kashmir					Central Nepal				
Tulian	-	-	Mon. St. F.	Roberts (1997)	Gosiakund	28°05'	85°25'	Mon. St. F.	Shrestha (1997)
Lidder	-	-	Mon. St. F.	Roberts (1997)	Lang Tang NP	28°16'	85°37'	Mon. St. F.	Shrestha (1997)
Gilgit					Tharepati	28°01'	85°30'	Mon. St. F.	Shrestha (1997)
Deosai Plains	35°20'	75°12'	Mon. St. F.	Chakraborty (1983)	Eastern Nepal				
Dhee Shar	-	-	Mon. St. F.	Roberts (1997); near Gilgit (35°45' N & 74°30' E)	Sagarmatha NP	27°20'	86°40'	Mon. St. F.	Shrestha (1997)
Gilgit	35°45'	74°30'	Mon.	Roberts (1997); Throughout the district	Mid Western Nepal				
Nurh	-	-	Mon. St. F.	Chakraborty (1983); near Skardu (35°18' N & 75°37' E)	Rara NP	29°34'	82°04'	Mon. St. F.	Shrestha (1997)
Phandar	-	-	Mon. St. F.	Roberts (1997); near Yasin (36°21' N & 73°13' E)	Pakistan				
Yasin	36°21'	73°13'	Mon. St. F.	Roberts (1997)	North Western Frontier Province				
Ladakh					Chitral Hills	36°15'	72°15'	Mon. St. F.	Roberts (1997); many locations
Shyok	34°11'	78°07'	Mon. St. F.	Roberts (1997)	Hazara				
Skardu	35°18'	75°37'	Mon. St. F.	Roberts (1997)	Bhogamarg Valley	-	-	Mon. St. F.	Roberts (1997)
Sikkim					Kaghan Valley	34°47'	73°32'	Mon. St. F.	Roberts (1997)
East Sikkim					Shahran	34°43'	73°59'	Mon. St. F.	Roberts (1997)
? Location	-	-	-	S.S. Saha (pers. comm.)	Saif-ul-Maluk Valley	34°52'	73°41'	Mon. St. F.	Roberts (1997)
Uttaranchal					Swat Kohistan				
Chamoli					Swat Kohistan	35°35'	72°30'	Mon. St. F.	Roberts (1997)
Nanda Devi NP	-	-	-	Tak & Lamba (1984); Tak (1997)					
Utar Pradesh									
Sharanpur									
Choor Mountains	-	-	Mon. St. F.	Chakraborty (1983); c. 29°54' N & 77°41' E					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Ochotona rufescens* (Gray, 1842)**

LEAST CONCERN in South Asia

Synonyms: *Lagomys rufescens* Gray, 1842; *Ochotona rufescens vutruna* Thomas, 1920

Order: Lagomorpha

Family: Ochotonidae

Common names: English: Afghan Pika

Taxonomic remarks: Ellerman and Morrison-Scott (1951) included *Ochotona rufescens vutruna* Thomas, 1920 that was reported from Kelat, Baluchistan which they remarked to be either an aberrant form or may not belong to *Ochotona rufescens* (Gray, 1842). Hoffmann (1993) synonymised *Ochotona rufescens vutruna* Thomas, 1920 with *Ochotona rufescens* (Gray, 1842)

Habit: Diurnal, terrestrial and semi-fossorial, colonial

Habitat: Temperate montane forests

Niche: Inhabits boulder strewn slopes and talus in temperate zone

Elevation: 1,900-3,500m

Distribution

Global: Afghanistan, Armenia, Iran, Pakistan, Turkmenia

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 6/3, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of < 20% during last 10 years and also a similar trend projected for the next 10 years due to land use practices and pest control activities

Threats

Pest control activities and natural predators

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Declining

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Hazar Ganji NP

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management

Captive stocks: None

Comments

None

Sources

Roberts, 1997; Srinivasulu *et al.*, 2004

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, W.L.D.P.T.S de A. Goonatilake, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Ochotona rufescens* (Gray, 1842) is known in Pakistan



Distribution of *Ochotona rufescens* (Gray, 1842) in South Asia (Pakistan) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

PAKISTAN
Baluchistan

Sibi
Boln 29°53' 67°14' Mon. St. F. Roberts (1997)

Quetta
Chiltan Hills 30°00' 66°53' Mon. St. F. Roberts (1997)

Ziarat
Ziarat 30°22' 67°44' Mon. St. F. Roberts (1997)

Zhob
Zhob 31°21' 69°28' Mon. St. F. Roberts (1997)

North Western Frontier Province

Kurram
Kurram 34°00' 70°00' Mon. St. F. Roberts (1997)

Waziristan
Waziristan 33°00' 70°00' Mon. St. F. Roberts (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Ochotona thibetana (Milne-Edwards, 1871)

VULNERABLE in South Asia

Synonyms: *Lagomys thibetana* Milne-Edwards, 1871; *Ochotona tibetana* deWinton & Styan, 1899; *Ochotona hodgsoni* Bonhote, 1905; *Ochotona sikkimaria* Thomas, 1922

Order: Lagomorpha

Family: Ochotonidae

Common names: English: Manipur Pika, Moupin Pika

Taxonomic remarks: Hoffmann (1993) remarks that this taxon had been formerly included by various authors in either *Ochotona forresti* Thomas, 1923 or *Ochotona nubrica* Thomas, 1922. The isolated taxon, named *Ochotona sikkimaria* Thomas, 1922, earlier assigned to *Ochotona cansus* Lyon, 1707 by Feng and Kao (1974) but transferred to *Ochotona thibetana* (Milne-Edwards, 1871) by Smith *et al.* (1990) concerns us

Habit: Diurnal, terrestrial and semi-fossorial, colonial

Habitat: Temperate and subtropical montane forests

Niche: Inhabits bamboo and rhododendron forest from moderate elevation to subalpine regions, and also inhabits rocky areas under forest canopies. Lives in open tunneling system that runs through varied micro contours

Elevation: 2,900-4,000m

Distribution

Global: Bhutan, China, India, Myanmar

South Asia: Bhutan, India

Extent of Occurrence: 5001-20,000 sq km [Bhutan unknown; India < 20,000]

Area of Occupancy: 11-500 sq km [Bhutan unknown; India < 500]

Locations/subpopulations: 3/3, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of < 20% during last 10 years and a similar trend projected for the next 10 years due to land use practices and livestock grazing pressures. Habitat in its range is generally affected due to anthropogenic and biotic pressures at a rate of less than 10% in the last 5 years

Threats

Habitat loss due to small-scale logging in bamboo and rhododendron patches, livestock grazing and natural as well as domesticated predators

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Informal sighting, literature, museum records; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) ENDANGERED ↓

VULNERABLE B2ab(iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

National Status (IUCN Ver. 3.0)

Bhutan: Data Deficient

Rationale: Exact location not known

India: Endangered ↓ Vulnerable B2ab(iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management

Conservation measures: Needed: Captive breeding programme for benign introductions

Captive stocks: None

Comments

Nepal record of this taxon from Shey-Phoksundo NP, Western Nepal by Shrestha (1997) needs verification (S.S. Saha, pers. comm.)

Sources

Hoffman, 1993; Mishra *et al.*, 2004; Srinivasulu *et al.*, 2004; Thomas, 1922

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, W.L.D.P.T.S de A. Goonatilake, Wes Sechrest, B.A. Daniel

Reviewers: S.S. Saha, T.P. Bhattacharyya

Recent Field Studies

India

Mishra C., A. Datta and M.D. Madhusudhan, Western Arunachal Pradesh, India, 2002-2003, High altitude wildlife of Arunachal Pradesh, India

Distribution of *Ochotona thibetana* (Milne-Edwards, 1871) in South Asia (Bhutan and India) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BHUTAN ? location	-	-	-	Hoffman, 1993; Srinivasulu <i>et al.</i> , 2004; No exact location given
INDIA				
Arunachal Pradesh				
West Kameng Mago Chu Valley	27°36'	92°02'	Mon. St. F.	Mishra <i>et al.</i> (2004)
Sikkim Lachung	27°44'	88°33'	Mon. St. F.	Thomas (1922); Lachen, type locality of sikkimaria
? location	-	-	-	S.S. Saha (pers. comm.); many localities in Sikkim
West Bengal				
Darjiling	26°45'	88°15'	Mon. St. F.	S.S. Saha (pers. comm.)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Ochotona thibetana* (Milne-Edwards, 1871) is known in Bhutan and India



***Manis crassicaudata* (Gray, 1827)**

VULNERABLE

Synonyms: *Manis laticauda* (*nom. nud.*) Illiger, 1815; *Manis crassicaudatus* Gray, 1827; *Pholidotus indicus* Gray, 1865
Order: Pholidota

Family: Manidae

Common names: English: Indian Pangolin; Oriya: *Bajrakapta*; Hindi: *Sechi*, *Surajmukhi*; Bengali: *Bonrui*; Urdu (Bangladesh): *Banrui*; Malayalam: *Enampeechi*; Telugu: *Nela Chepa*, *Polusu Pandi*

Taxonomic remarks: Belongs to subgenus *Manis* Linnaeus, 1758. Schlitter (1993) opines that it was formerly erroneously called '*pentadactyla*'

Habit: Nocturnal, fossorial, terrestrial

Habitat: Tropical and subtropical dry and moist deciduous forests, scrub, grasslands, and urban areas

Niche: Found in cultivated lands, dry and moist deciduous forests except deserts

Elevation: 0-2,800m

Distribution

Global: Endemic to South Asia

South Asia: Bangladesh, India, Nepal, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bangladesh < 20,000; India > 20,000; Nepal < 20,000; Pakistan > 20,000; Sri Lanka unknown]

Area of Occupancy: > 2,001 sq km [Bangladesh < 2,000; India > 2,000; Nepal < 2,000; Pakistan > 2,000; Sri Lanka unknown]

Locations/subpopulations: 49, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of > 30% during last 10 years and a similar trend projected for the next 10 years due to increase in human settlements, forest encroachments, loss of favourable habitats and niches, and increased human interference. This species feeds exclusively on termites and removal of termite mounds by humans affects the population and the habitat of this species

Threats

Habitat loss and degradation due to expansion of agriculture, alteration of habitat due to plantations, non-timber plantations, increase in human settlements, construction of dams, forest fires and pest control practices. This species is harvested for local consumption and medicinal purposes by trapping, netting and snaring.

Trade: Local trade for consumption and medicinal use

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in the population at the rate of 30% or more in the last 10 years and a similar trend is predicted for the next 10 years.

Data source

Field study, museum specimens, literature, informal sightings, indirect information, hearsay and popular belief; observed; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE A2c+3c+4c**

Rationale: In the South Asian region, there is a continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations.

National Status (IUCN Ver. 3.0)

Bangladesh: Vulnerable A2c+3c+4c

Rationale: There is a continuing decline in population due to major threats over the last three generations.

Predicted decline at the same rate over the next three generations. Since the neighbouring population is also in similar situation, the threat category is retained.

India: Vulnerable A2c+3c+4c

Rationale: There is a continuing decline in population due to major threats over the last three generations.

Predicted decline at the same rate over the next three generations. Since the neighbouring population is also in similar situation, the threat category is retained.

Nepal: Vulnerable A2c+3c+4c

Rationale: There is a continuing decline in population due to major threats over the last three generations.

Predicted decline at the same rate over the next three generations. Since the neighbouring population is also in similar situation, the threat category is retained.

Pakistan: Vulnerable A2c+3c+4c

Rationale: There is a continuing decline in population due to major threats over the last three generations.

Predicted decline at the same rate over the next three generations. Since the neighbouring population is also in similar situation, the threat category is retained.

Sri Lanka: Data Deficient

Rationale: Exact location is not known.

Wildlife Legislation:

Bangladesh: None

India: Schedule II, Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

Pakistan: None

Sri Lanka: None

CITES: Appendix II

Presence in Protected Areas

Bangladesh

Madhupur NP

India

Andhra Pradesh: Eturnagaram WS; Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS;

Nagarjunsagar Srisailem TR

Kerala: Aralam WS; Peechi-Vazhani WS; Periyar TR;

Parambikulam WS; Silent Valley NP; Wayanad WS

Orissa: Chandaka-Dampara WS

Tamil Nadu: Nilgiri BR

Nepal: Royal Bardia NP, Royal Shukla Phanta WR

Recommendations

Research: Survey studies

Management: Habitat management, public awareness, captive breeding

Conservation measures: Needed: Formulation of management action plans, national level legislative actions, public awareness and education. Research to monitor population trends, habitat status, biology and ecology of the species, extent of harvest of the species, threats. Site based actions in the protected areas, community-based initiatives, species-based actions, recovery management to be taken up

Captive stocks: Andhra Pradesh: Nehru Zoological Park,

Hyderabad, has some captive animals (C. Srinivasulu, *pers. comm.*)

Comments

Almost > 50% decline in the last 15 years was observed in its range. In West Bengal > 20% decline in 20 years was observed

Sources

Chakraborty, 2003; Chauhan & Narain, 2001; Phillips, 1981; Easa *et al.*, 2001, Pradhan, 1997; Pradhan and Kurup, 2001; Roberts, 1997; Shreshta, 1997; Srinivasulu and Srinivasulu, 2004; Tiwari *et al.*, 2002 BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu, 2003

Compilers

A.K. Chakravarthy, C. Srinivasulu, A.R. Binu Priya

Reviewers: C. Srinivasulu, P. Padmanabhan, M.S. Pradhan, P.O. Nameer, S. Chakraborty, S.U. Sarker, W.L.D.P.T.S. de A. Goonatillake

Recent Field Studies

Chakraborty, S., in West Bengal, 2003, Status of Pangolins in West Bengal - A report submitted to the Department of Forests and Environment, Government of West Bengal
Srinivasulu, C. and Bhargavi Srinivasulu, throughout Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh

Srinivasulu, C., Nagarjunasagar Srisailam Tiger Reserve and Gundla Brahmeshwaram Metta Wildlife Sanctuary, 1996 onwards, Biodiversity of Nallamala Hills

Srinivasulu, C., Kasu Brahmananda Reddy National Park, 2002 onwards, Faunal inventorying (in collaboration with FBS/ZSI, Hyderabad)

Srinivasulu, C. and Bhargavi Srinivasulu, Kurnool grasslands, Hyderabad and Secunderabad environs, Ranga Reddy district and Nagarjunasagar Srisailam Tiger Reserve, 2002 onwards, Non-Volant small mammals of selected areas of Andhra Pradesh

Locations from where *Manis crassicaudata* (Gray, 1827) is known in Bangladesh, India, Nepal, Pakistan and Sri Lanka



Distribution of *Manis crassicaudata* (Gray, 1827) (Endemic to Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Khulina	29°00'	89°00'	Mang. F.	S.U. Sarker (pers. comm.) in Sunderbans	Goa	15°35'	74°00'	Trop. F.	Pradhan and Kurup (2001)
Khulina	24°43'	90°04'	Trop. F.	Sarker (pers. comm.)	Karnataka	12°25'	75°45'	Trop. F.	Pradhan and Kurup (2001)
Madhupur NP					Kodagu				
					Coorg				
INDIA									
Andhra Pradesh									
Adilabad	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS. Near Utnoor (19°22' N & 78°46' E)	Kerala	9°32'	77°12'	Trop. F.	Easa et al. (2001)
Itkylal					Idukki				
Hyderabad	17°22'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Periyar TR				
Hyderabad					Cannanore				
Kasu Brahmananda Reddy NP	17°22'	78°28'	Trop. F.	Srinivasulu et al. (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Aralam	-	-	Trop. F.	Easa et al. (2001)
					Chavakkad	10°32'	76°03'	Trop. F.	Easa et al. (2001)
					Neyyar	8°12'	77°18'	Trop. F.	Easa et al. (2001)
					Vazhachal RF	-	-	Trop. F.	Easa et al. (2001)
Kurnool	15°58'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS. Tropical dry deciduous forest with Terminalia-Anogeissus complex and bamboo brakes in Nagarjunasagar	Palakkad	10°23'	76°49'	Trop. F.	Easa et al. (2001)
Pecheruvu					Parambikulam	10°46'	76°42'	Trop. F.	Easa et al. (2001)
					Silent Valley NP				
Veligode	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS. Srisaillam TR	Thrissur				
					Peechi-Vazhani				
					WS				
					Wayanad				
					Wayanad WS	11°25'	76°10'	Trop. F.	Easa et al. (2001)
Madhya Pradesh									
Mahubnagar					Sabalgarh				
Amrabad Plateau	16°23'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sabalgarh	26°15'	77°24'	Trop. F.	Chauhan and Narain (2001)
Padra	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Amrabad (16°23' N & 78°50' E)					
Rangareddy	17°20'	77°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Maharashtra				
Vikarabad					Kolhapur	-	-	Trop. F.	M.S. Pradhan (pers. comm.)
Warnagal					Pune				
Kanararam	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Talegaon	20°41'	78°06'	Trop. F.	M.S. Pradhan (pers. comm.)
					Satara				
					Satara	17°43'	74°05'	Trop. F.	M.S. Pradhan (pers. comm.)
					Sholapur	-	-	Trop. F.	M.S. Pradhan (pers. comm.)
Tupaklagudem	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Wardha river basin	19°38'	79°49'	Trop. F.	M.S. Pradhan (pers. comm.)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Manis crassicaudata* (Gray, 1827) (Endemic to Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

... Contd.

Distribution in South Asia		Distribution in South Asia		Distribution in South Asia			
Lat.	Long.	Habitat	Notes / Sources	Lat.	Long.	Habitat	Notes / Sources
Orissa							
Khurda and Cuttack							
-	-	Trop. F.	Tiwari <i>et al.</i> (2002), near about 20°22' N and 85°46' E	33°34'	71°26'	Trop. F.	Roberts (1997)
Ambakhali							
Uttar Pradesh							
Itawah							
-	-	Temp. F.	Chauhan and Narain <i>et al.</i> (2001); around Itawah (23°09' N & 74°29' E)	33°36'	73°04'	Trop. F.	Roberts (1997)
Bahreh							
-	-	Temp. F.	Chauhan and Narain <i>et al.</i> (2001); around Itawah (23°09' N & 74°29' E)	32°30'	74°32'	Trop. F.	Roberts (1997)
Bindwa							
-	-	Temp. F.	Chauhan and Narain <i>et al.</i> (2001); around Itawah (23°09' N & 74°29' E)	25°24'	68°22'	Trop. F.	Roberts (1997)
Chakarnagar							
-	-	Temp. F.	Chauhan and Narain <i>et al.</i> (2001); around Itawah (23°09' N & 74°29' E)	-	-	Trop. F.	Roberts (1997)
Sindaus							
-	-	Temp. F.	Chauhan and Narain <i>et al.</i> (2001); around Itawah (23°09' N & 74°29' E)	-	-	Trop. F.	Roberts (1997)
West Bengal							
? locations							
-	-	Trop. F.	S. Chakraborty (pers. comm.).	-	-	Trop. F.	Roberts (1997)
Northwestern West Bengal							
Puruliya	23°20'	Trop. F.	S. Chakraborty (pers. comm.).	-	-	Trop. F.	Roberts (1997)
Puruliya	86°25'	Trop. F.	S. Chakraborty (pers. comm.).	-	-	Trop. F.	Roberts (1997)
NEPAL							
Western Nepal							
Royal Bardia NP	28°18'	Mon. St. F.	Shreshta (1997)	34°19'	71°56'	Trop. F.	Roberts (1997)
Royal Shukla Phanta NP	-	Mon. St. F.	Shreshta (1997)	34°01'	71°33'	Trop. F.	Roberts (1997)
PAKISTAN							
Baluchistan							
Lasbelas	25°45'	Trop. F.	Roberts (1997)	-	-	Trop. F.	Phillips (1981), no exact location given
Lasbelas	66°35'	Trop. F.	Roberts (1997)	-	-	Trop. F.	Phillips (1981), no exact location given
Makran	26°00'	Semi. D.	Roberts (1997)	-	-	Trop. F.	Phillips (1981), no exact location given
Makran	63°30'	Semi. D.	Roberts (1997)	-	-	Trop. F.	Phillips (1981), no exact location given
Punjab							
Gujrat	32°34'	Trop. F.	Roberts (1997)	-	-	Trop. F.	Phillips (1981), no exact location given
Gujrat	74°04'	Trop. F.	Roberts (1997)	-	-	Trop. F.	Phillips (1981), no exact location given
Jhelum	32°57'	Trop. F.	Roberts (1997)	-	-	Trop. F.	Phillips (1981), no exact location given
Jhelum	73°44'	Trop. F.	Roberts (1997)	-	-	Trop. F.	Phillips (1981), no exact location given
Kohat							
C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands							

***Manis pentadactyla* Linnaeus, 1758**

VULNERABLE in South Asia

Synonyms: *Manis auritus* Hodgson, 1836; *Phateges bengalensis* Fitzinger, 1872; *Pholidotus assamensis* Fitzinger, 1872

Order: Pholidota

Family: Manidae

Common names: English: Chinese Pangolin

Taxonomic remarks: Belongs to subgenus *Manis* Linnaeus, 1758. Schlitter (1993) opines that it formerly included representatives of '*pentadactyla*' that are now treated distinctly.

Habit: Nocturnal, subterranean

Habitat: Tropical and subtropical dry deciduous forests

Niche: Burrows

Elevation: Up to 2,000m

Distribution

Global: China, India, Myanmar, Nepal, Taiwan

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000]

Area of Occupancy: 501-2,000 sq km [India < 500; Nepal < 500]

Locations/subpopulations: 12/8, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of < 20% during last 5 years and 21% to 50% for the next 10 years due to human induced habitat alterations and soil mining

Threats

Harvesting for local consumption and medicinal purposes. The scales of this species are used for making handicrafts and for pest control.

Trade: Local trade for consumption and medicinal use

Population

Generation time: Unknown

Total population: Declining. Rate unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, field study, museum specimens, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE in South Asia B2ab(ii,iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. Although it occurs in the neighbouring countries, it has been retained as Vulnerable due to pressure on populations.

National Status (IUCN Ver. 3.0)

India: Endangered B2ab(ii,iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in India. Although it occurs in the neighbouring countries, it has been retained as Vulnerable due to pressure on populations.

Nepal: Endangered B2ab(ii,iii)

Rationale: Restricted in area of occupancy, few and

fragmented locations, with major threats affecting habitat area and quality in Nepal. Although it occurs in the neighbouring countries, it has been retained as Vulnerable due to pressure on populations.

Wildlife Legislation:

India: Schedule II, Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

CITES: Appendix II

Presence in Protected Areas

India

Arunachal Pradesh: Pakhui WS, Namdapha NP

West Bengal: Buxa TR, Gorumara NP

Recommendations

Research: Survey studies, limiting factor

Management: Habitat management, monitoring, captive breeding for benign introductions

Captive stocks: None

Comments

None

Sources

Agrawal *et al.*, 1992; Das *et al.*, 1995; Mishra *et al.*, 2004; Shreshta, 1997; Srinivasulu and Bhargavi Srinivasulu, 2004

Compilers

A.K. Chakravarthy, Shomen Mukherjee, A.R. Binu Priya

Reviewers: S. Chakraborty, C. Srinivasulu

Recent Field Studies

ZSI survey team, in Namdapha NP, Arunachal Pradesh, 1981-1988, ZSI survey team, in Mizoram, 1994-1995

Locations from where *Manis pentadactyla* Linnaeus, 1758 is known in India and Nepal



Distribution of *Manis pentadactyla* Linnaeus, 1758 in South Asia (India and Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA				
Arunachal Pradesh				
Changlang Namdapha NP	27°23' to 27°39'	96°15' to 96°58'	Mon. St. F.	Mishra <i>et al.</i> (2004)
East Kameng Pakhui WS	26°54' to 27°16'	92°36' to 93°09'	Mon. St. F.	Mishra <i>et al.</i> (2004)
West Kameng Mago Chu Valley	-	-	Mon. St. F.	Mishra <i>et al.</i> (2004)
Meghalaya				
East Garo Hills	-	-	Mon. St. F.	Das <i>et al.</i> (1995)
East Khasi Hills	-	-	Mon. St. F.	Das <i>et al.</i> (1995)
West Bengal				
Jalpaiguri Buxa TR	26°45'	89°35'	Mon. St. F.	Agrawal <i>et al.</i> (1992)
Gorumara NP	-	-	Mon. St. F.	Agrawal <i>et al.</i> (1992)
NEPAL				
Central Nepal				
Barabise	27°47'	85°54'	Temp. F.	Shreshta (1997)
Panauli	27°35'	85°31'	Temp. F.	Shreshta (1997); Babbhar area
Ramechhap	27°25'	86°05'	Temp. F.	Shreshta (1997)
Soondarijal	27°45'	85°54'	Temp. F.	Shreshta (1997)
Western Nepal				
Baglung	28°25'	83°10'	Temp. F.	Shreshta (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Calomyscus baluchi* Thomas, 1920**

Synonyms: *Calomyscus bailwardi baluchi* (Thomas, 1920); *Calomyscus mustersi* Ellerman, 1948

Order: Rodentia

Family: Calomyscidae

Common names: English: Baluchi Mouse-like Hamster

Taxonomic remarks: Ellerman (1961) synonymised

Calomyscus baluchi Thomas, 1920 with *Calomyscus bailwardi bailwardi* Thomas, 1905 a trend also followed by Corbet and Hill (1992) who treated *baluchi* as a subspecies of *Calomyscus bailwardi* Thomas, 1905. Musser and Carleton (1993) quoting Vorontsov *et al.* (1979) remark that *Calomyscus baluchi* Thomas, 1920 includes *mustersi* (full name *Calomyscus mustersi* Ellerman, 1948), that was earlier treated as a subspecies of *Calomyscus bailwardi* Thomas, 1905 by Corbet and Hill (1992)

Habit: Nocturnal, fossorial, gregarious

Habitat: Hot Desert

Niche: Rocky areas with scattered scrub, loosely colonial species lives under rocks and burrows

Elevation: ~ 600m

Distribution

Global: Afghanistan, Pakistan

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: Many/10, Fragmented

Habitat status: Habitat condition unknown. Quantitative and qualitative decrease in habitat possible

Threats

Threats not known for this species or the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, literature; subjective; suspected

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species. No major threats.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Hazar Ganji NP; *Sind*: Dureji GR, Kirthar NP

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

LEAST CONCERN in South Asia

Comments

None

Sources

Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Mike Jordan, Shomen Mukherjee, A.R. Binu Priya

Reviewers: Mike Jordan

Recent Field Studies

Pakistan

Ali Nawaz, Kirthar Range, 2001-2003, Population survey

M. Rafique, Z.B. Mirza and Sarwar Mirza, Dureji Game Reserve, 1993-2000, Population survey

Locations from where *Calomyscus baluchi* Thomas, 1920 is known in Pakistan



Distribution of *Calomyscus baluchi* Thomas (1920) in South Asia (Pakistan) from literature and recent field studies

Distribution in
South Asia

Lat. Long. Habitat Notes./ Sources

PAKISTAN

Baluchistan

Joha
Panjgur Semi D. Roberts (1997)
Suleman Hills Semi D. Roberts (1997)

Kelat
Harboi Semi D. Roberts (1997)
Kelat Semi D. Roberts (1997)

Quetta
Chiltan Hills Semi D. Roberts (1997)
Fort Monroe Semi D. Roberts (1997)
Uruk Valley Semi D. Roberts (1997)
D.

Ziarat
Sandeman Tangi 30°23' 67°41' Semi D. Roberts (1997)

North West

Frontier Province

Kurram 34°00' 70°00' Semi D. Roberts (1997)

Parachinar
Parachinar 33°53' 70°07' Semi D. Roberts (1997)

Wazaristan
Wazaristan 33°00' 70°00' Semi D. Roberts (1997)

Sind

Dadu
Dadu 26°44' 67°47' Semi D. Roberts (1997)
Lakhi Hills 26°16' 67°53' Semi D. Roberts (1997)
Rani Kot Fort 25°55' 67°52' Semi D. Roberts (1997)

Las Belas
Las Belas 25°45' 66°35' Semi D. Roberts (1997)

Larkana
Larkana 27°32' 68°12' Semi D. Roberts (1997)

Wazaristan
Wazaristan 33°00' 70°00' Semi D. Roberts (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Calomyscus hotsoni* Thomas, 1920**

CRITICALLY ENDANGERED

Synonyms: *Calomyscus bailwardi hotsoni* (Thomas, 1920)

Order: Rodentia

Family: Calomyscidae

Common names: English: Hotson's Mouse-like Hamster

Taxonomic remarks: Ellerman (1961) synonymized *Calomyscus hotsoni* Thomas, 1920 with *Calomyscus bailwardi hotsoni* (Thomas, 1920). Corbet and Hill (1992) synonymised *hotsoni* with *baluchi* and treated the latter as a subspecies of *Calomyscus bailwardi* Thomas, 1905. Musser and Carleton (1993) quoting Vorontsov *et al.* (1979) recognise this as a distinct species and comment that it is known only from vicinity of type locality

Habit: Nocturnal, fossorial

Habitat: Hot Desert

Niche: Rocky areas with scattered scrub

Elevation: Unknown

Distribution

Global: Endemic to Pakistan

Extent of Occurrence: < 100 sq km

Area of Occupancy: 11-500 sq km (Estimated < 100 sq km)

Locations/subpopulations: 1/1

Habitat status: Declining in area and quality

Threats

Agriculture, settlements, fragmentation

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, literature; suspected; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **CRITICALLY ENDANGERED**

B1ab(ii,iii)

Rationale: This species is known only from the type locality

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Mike Jordan, Shomen Mukherjee, A.R. Binu Priya

Reviewers: Mike Jordan

Recent Field Studies

None

Location from where *Calomyscus hotsoni* Thomas, 1920 is known in Pakistan



Distribution of *Calomyscus hotsoni* Thomas, 1920 (Endemic to Pakistan) from literature and field studies

Distribution in
South Asia

Habitat

Long.

Lat.

Notes / Sources

PAKISTAN

Baluchistan

Panjgur

Gwambul Lau

26°09' 64°15'

D.

Roberts (1997); 50 km SW of Panjgur

***Cricetulus alticola* Thomas, 1917**

Synonyms: *Cricetulus alticola tibetanus* Thomas and Hinton, 1922

Order: Rodentia

Family: Cricetidae

Common names: English: Ladakh Hamster

Taxonomic remarks: Ellerman (1961) synonymised the Tibetan race with the nominate *Cricetulus alticola* Thomas, 1917, about which Agrawal (2000) offers no comments. Feng *et al.* (1986) considered it a subspecies of *Cricetulus kamensis* (Satunin, 1903) which Ellerman and Morrison-Scott (1951) treated as *incertae sedis*. Corbet and Hill (1992), and Musser and Carleton (1993) treated it as a distinct species. However, Corbet and Hill (1992) do not write anything in detail about this taxon since their work is restricted to species reported from Indo-malayan region.

Habit: Nocturnal, terrestrial, solitary, and feeds on grains and insects

Habitat: Coniferous forest

Niche: Rocky areas

Elevation: ~4,000m

Distribution

Global: China, India, Nepal

South Asia: India, Nepal

Extent of Occurrence: < 20,000 sq km [India < 5,000; Nepal unknown]

Area of Occupancy: < 2,001 sq km [India < 500; Nepal unknown]

Locations/subpopulations: 2/2, Fragmented

Habitat status: Qualitative and quantitative decline in habitat condition at the rate of < 5% during the past 10 years and a predicted rate of < 10% in the next 10 years due to expansion of human settlements

Threats

Habitat loss due to expansion of human settlements and army camps

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, literature; subjective; suspected

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) VULNERABLE ↓ NEAR THREATENED in South Asia B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

National Status (IUCN Ver. 3.0)

India: Endangered ↓ Vulnerable B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country.

NEAR THREATENED in South Asia

However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Nepal: Data Deficient

Rationale: Exact location not known

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, limiting factor research

Management: Habitat management, monitoring

Captive stocks: None

Comments

Most of its distribution range lies outside South Asia. Ladakh population and that from Tibet may have contiguous range. Pending reliable field data on its distribution range the two populations from the region are considered distinct and separated from each other

Sources

Agrawal, 2000; Chakraborty, 1983; Lim and Ross 1992; Musser and Carleton, 1993; Srinivasulu and Pradhan, 2003

Compilers

Shomen Mukherjee, Mike Jordan, A.R. Binu Priya

Reviewers: S.S. Saha

Recent Field Studies

None

Locations from where *Cricetulus alticola* Thomas, 1917 is known in India and Nepal



Distribution of *Cricetulus alticola* Thomas, 1917 in South Asia (India and Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jammu and Kashmir				
Ladakh	-	-		
Chushul			Temp.	F. Chakraborty (1983), Musser and Carleton (1993), Agrawal (2000)
NEPAL				
Western Nepal				
Unknown	-	-	Temp.	F. Lim and Ross (1992), Srinivasulu and Pradhan (2003)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Cricetulus migratorius* (Pallas, 1773)**

Synonyms: *Mus migratorius* Pallas, 1773; *Cricetus* (*Crietulus*) *fulvus* Blanford, 1875

Order: Rodentia

Family: Cricetidae

Common names: English: Little Grey Hamster

Taxonomic remarks: Ellerman (1961) listed two subspecies occurring from the region, while Corbet and Hill (1992) do not mention anything about the same. Ellerman and Morrison-Scott (1951) list *Cricetulus migratorius cinerascens* (Wagner, 1848) from Pakistan. Agrawal (2000) remarks that the subspecies listed by Ellerman (1961) resemble closely, hence do not warrant subspecific separation, but lists one subspecies *Cricetulus migratorius fulvus* (Blanford, 1875) occurring in the Indian range

Habit: Nocturnal, commensal, colonial with 5-6 individuals, granivorous, omnivorous

Habitat: Temperate forests, grasslands and cold deserts

Niche: Montane forests, found in Mountain steppe, high altitude mountain valley bottoms, terrace cultivation, outskirts of mountain villages. Absent in moist forest regions of Himalayas. Widespread in drier mountain areas

Elevation: 1,350-3,200m

Distribution

Global: Afghanistan, Asia Minor, China, India, Iran, Iraq, Israel, Jordan, Kazakhstan, Lebanon, Mongolia, Pakistan, Russia, Turkestan, Turkey

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2001sq km [India > 2,000; Pakistan > 2,000]

Locations/subpopulations: 12/3, Fragmented

Habitat status: Qualitative and quantitative decline in habitat condition at the rate of 5 % during the past 20 years and a predicted rate of < 10% in the next 10 years due to illegal deforestation and defence establishments

Threats

Habitat loss due to small-scale logging and defence establishments

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum record, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

LEAST CONCERN in South Asia

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Habitat management, monitoring

Captive stocks: None

Comments

Although known from many locations in the Upper Himalayas, not much is known about its biology and population status. Though widely distributed in its range, in upper Himalayas in Jammu and Kashmir, India and Pakistan this species marginally occurs in South Asia. The habitats in the range from where this taxon has been reported is under threat due to anthropogenic factors

Sources

Roberts, 1997; Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya,

Reviewers: S.S. Saha

Recent Field Studies

None

Locations from where *Cricetulus migratorius* (Pallas, 1773) is known in India and Pakistan.



Distribution of *Cricetulus migratorius* (Pallas, 1773) in South Asia (India and Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jammu & Kashmir				
Gilgit	36°19'	74°41'	Temp.	F. Roberts (1997), Agrawal (2000)
Baltistan	34°45'	74°30'	Temp.	F. Roberts (1997), Agrawal (2000)
Gilgit	-	-	Temp.	F. Roberts (1997)
Karigah	35°54'	74°20'	Temp.	F. Roberts (1997)
Nullar Valley	36°22'	73°20'	Temp.	F. Roberts (1997), near Pandhar Lake
Yasin	30°22'	67°44'	Temp.	F. Roberts (1997)
Ziarat				
PAKISTAN				
Baluchistan				
Chaman	30°55'	66°26'	Mon.	Roberts (1997)
			St. F.	
Sindh				
Quetta	27°30'	66°00'	Trop. F.	Roberts (1997), in Pishin
Kelat	-	-	Trop. F.	Roberts (1997), in Pishin and in and around Kelat
Ladha				
Saranan	-	-	Trop. F.	Roberts (1997), in Pishin and in and around Kelat
North West Frontier Province				
Kurram Agency	34°00'	70°00'	Temp.	F. Roberts (1997)
Kurram Valley				
Waziristan	33°00'	70°00'	Temp.	F. Roberts (1997)
Waziristan				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Allactaga elater* (Lichtenstein, 1828)**

Synonyms: *Dipus elater* Lichtenstein, 1828; *Alactaga* [sic] *indica* Gray, 1842; *Allactaga bactriana* Blyth, 1863

Order: Rodentia

Family: Dipodidae

Common names: English: Small Five-toed Jerboa

Taxonomic remarks: Ellerman (1961) details on *Allactaga elater indica* (Gray, 1842). Holden (1993a) opines that the type locality given by Lichtenstein is in West Kazakhstan not in East Kazakhstan as reported by Ellerman and Morrison-Scott (1951), Corbet (1978) and Corbet and Hill (1992). Refer Roberts (1997) for further details

Habit: Nocturnal, lives in loose or scattered colonies

Habitat: Cold desert and plantation tracts

Niche: Stony alluvial soil, gravel flats, rocky mountain slopes

Elevation: Not known

Distribution

Global: Afghanistan, Azerbaijan, Armenia, Caucasus, China, Georgia, Iran, Kazakhstan, Mongolia, Pakistan, Russia, Turkmenistan, Turkey

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 6/8, Contiguous

Habitat status: Unknown.

Threats

Threats not known for this species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; range of opinion; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0): **LEAST CONCERN in South Asia**

Rationale: Widely distributed in South Asia. No major threats. Also found in neighbouring region.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Hazar Ganji NP

Recommendations

Research: Survey, life history

Management: Monitoring, habitat management, public awareness

Conservation measures: *Needed*: Management plans, education awareness, research on habitat status, ecology, population numbers and range

Captive stocks: None

LEAST CONCERN in South Asia

Comments: None

Sources

Agrawal, 2000; Roberts, 1997; Srinivasulu and Jordan, 2004

Compilers

Shomen Mukherjee, A.K. Chakravarthy, S.S. Saha, B. Collens, A.R. Binu Priya

Reviewers: Mike Jordan

Recent Field Studies

None

Locations from where *Allactaga elater* (Lichtenstein, 1828) is known in Pakistan



Distribution of *Al/actaga elater* (Lichtenstein, 1828) in South Asia (Pakistan) from literature and field studies

Distribution in
South Asia

PAKISTAN
Baluchistan

<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
29°52'	67°21'	C. D.; RM	Roberts, 1997
30°55'	66°25'	C. D.; RM	Roberts, 1997
30°37'	66°35'	C. D.; RM	Roberts, 1997
28°29'	68°38'	C. D.; RM	Roberts, 1997
30°39'	67°00'	C. D.; RM	Roberts, 1997
30°23'	63°38'	C. D.; RM	Roberts, 1997
30°02'	66°52'	C. D.; RM	Roberts, 1997
28°14'	66°56'	C. D.; RM	Roberts, 1997

C. D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H. D. - Hot Desert; Mang. F. - Mangrove Forest; Mon. G. S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Allactaga hotsoni* Thomas, 1920**

LEAST CONCERN in South Asia

Synonyms: None

Order: Rodentia

Family: Dipodidae

Common names: English: Hotson's Five-toed Jerboa

Taxonomic remarks: Ellerman (1961) provides a brief note on this taxon. Refer Roberts (1997) for further morphological and ecological details

Habit: Nocturnal, terrestrial, herbivorous

Habitat: Hot desert [Avoids steeper slopes in montane areas and also cold deserts]

Niche: Gravel plains, stony peneplains, barren desert areas

Elevation: 200-1500m

Distribution

Global: Afghanistan, Iran, Pakistan

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km [Based on inference of areas available between locations currently known to have the species]

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 7/2, Contiguous

Habitat status: Unknown

Threats

Threats not known for this species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred; suspected

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0): **LEAST CONCERN** in South Asia

Rationale: Widely distributed in South Asia. No major threats. Also found in neighbouring region.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Hazar Ganji NP

Recommendations

Research: Survey, life history

Management: Monitoring, habitat management, public awareness

Conservation measures: None proposed

Captive stocks: None

Comments

None

Sources

Roberts, 1997; Srinivasulu and Jordan, 2004

Compilers

Shomen Mukherjee, A.K. Chakravarthy, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Allactaga hotsoni* Thomas, 1920 is known from Pakistan



Distribution of *Alactaga hotsoni* Thomas, 1920 in South Asia (Pakistan) from literature and field studies

Distribution in South Asia Lat. Long. Habitat Notes / Sources

PAKISTAN

Baluchistan

Chagai				
Anam Bostan	29°44'	65°51'	H.D	Roberts, 1997
Darzi Chach	29°41'	65°37'	H.D	Roberts, 1997
Noakundi	29°49'	62°46'	H.D	Roberts, 1997
Kech				
Prom	26°38'	64°21'	H.D	Roberts, 1997
Sibi				
? Kont	29°33'	67°54'	H.D	Roberts, 1997
Panjgur				
Panjgur	36°58'	64°06'	H.D	Roberts, 1997
Quetta				
Hazar Ganji NP	30°04'	66°52'	H.D	Roberts, 1997

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Jaculus blanfordi* (Murray, 1884)**

LEAST CONCERN in South Asia

Synonyms: *Dipus blanfordi* Murray, 1884

Order: Rodentia

Family: Dipodidae

Common names: English: Blanford's Jerboa; Greater Three-toed Jerboa

Taxonomic remarks: None

Habit: Nocturnal, solitary

Habitat: Hot and cold deserts

Niche: Barren arid regions, sand dunes

Elevation: 700-1250m

Distribution

Global: Afghanistan, Iran, Pakistan, Turkmenistan

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 5/2, Contiguous [Number of locations could be more than 10]

Habitat status: Unknown

Threats

Threats not known for this species or the habitat where it occurs. In Syria, this species is used in falconery, it is assumed that the same might be its fate in Pakistan [Mike Jordan, *pers. comm.*]

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in population is predicted for the future at the rate of 10% or more in 10 years as this taxon is collected for food for Falcons

Data source

Indirect information, literature; suspected; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0): **LEAST CONCERN** in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Zangi Nawar GR

Recommendations

Research: Survey studies, life history

Management: Monitoring, public awareness, captive breeding

Conservation measures: *Needed*: Management plans, education awareness, research on habitat status, biology, ecology, population numbers and range

Captive stocks: None

Comments

None

Sources

Roberts, 1997

Compilers

Mike Jordan, A.K. Chakravarthy, Shomen Mukherjee, A.R. Binu Priya

Reviewers: Mike Jordan

Recent Field Studies

None

Locations from where *Jaculus blanfordi* (Murray, 1884) is known in Pakistan



Distribution of *Jaculus blanfordi* (Murray, 1884) in South Asia (Pakistan) from literature and field studies

Distribution in South Asia

PAKISTAN
Baluchistan

<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
29°39'	65°39'	C.D	Roberts, 1997
29°33'	66°01'	C.D	Roberts, 1997
29°25'	67°47'	C.D	Roberts, 1997
-	-	C.D	Roberts, 1997
-	-	C.D	Roberts, 1997

Pishin
Banks of Lora
river

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Salpingotus michaelis Fitzgibbon, 1966

NEAR THREATENED in South Asia

Synonyms: None

Order: Rodentia

Family: Dipodidae

Common names: English: Baluchistan Pygmy Jerboa; Dwarf Three-toed Jerboa

Taxonomic remarks: Pavlinov (1980) placed this taxon under genus *Salpingotulus*, later Pavlinov and Rossolimo (1987) included it under *Salpingotus* Vinogradov, 1922; a trend that was also followed by Corbet and Hill (1992), and Holden (1993). Refer Roberts (1997) for further details

Habit: Nocturnal, loosely colonial, gregarious, herbivorous
Habitat: Rolling sand dunes or barren flat gravel and sandy plains in hot deserts

Niche: Arid deserts

Elevation: 1000-1600m

Distribution

Global: Afghanistan, Pakistan

South Asia: Pakistan

Extent of Occurrence: < 5,000 sq km

Area of Occupancy: < 500 sq km

Locations/subpopulations: 2/2, Contiguous. This taxon is known from only two closer locations in Chagai district of Baluchistan (Roberts, 1997)

Habitat status: Unknown

Threats

Threats not known for this species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; suspected; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0): **VULNERABLE** ↓ **NEAR THREATENED in South Asia D2**

Rationale: Restricted in area of occupancy less than 5 locations in South Asia. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey studies, life history

Management: Habitat management, wild population management, monitoring

Captive stocks: None

Comments

None

Sources

Roberts, 1997; Srinivasulu and Jordan, 2004

Compilers

S.S. Saha, A.K. Chakravarthy, Shomen Mukherjee, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Salpingotus michaelis* Fitzgibbon, 1966 is known in Pakistan



Distribution of *Salpingotus michaelis* Fitzgibbon, 1966 in South Asia (Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
PAKISTAN				
Baluchistan				
Chagai	29°44'	65°53'	D.	Roberts, (1997); at the Frontier Post
Anam Bostan	29°33'	66°01'	C.D.	Roberts, (1997); Desert Plateau
Nushki				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Sicista concolor* (Buchner, 1892)**

Synonyms: *Sminthus concolor* Buchner, 1892; *Sminthus leathemi* Thomas, 1893; *Sicista concolor leathemi* (Thomas, 1893); *Sminthus flavus* True, 1894; *Sicista concolor flavus* (True, 1894)

Order: Rodentia

Family: Dipodidae

Common names: English: Chinese Birch Mouse

Taxonomic remarks: Ellerman (1961) details about two subspecies, namely, *Sicista concolor leathemi* (Thomas, 1893) and *Sicista concolor flavus* (True, 1894) from the region. We follow Holden (1993a) in synonymising these names

Habit: Nocturnal, fossorial, eats berries, fruits and seeds

Habitat: Alpine and sub alpine scrub zones in the Himalaya and grassy slopes of moist montane forests (Roberts, 1997)

Niche: Montane moist grassy slopes and terrace cultivation

Elevation: 2140-4000m

Distribution

Global: China, India, Pakistan

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India < 20,000; Pakistan < 20,000]

Area of Occupancy: > 2,001 sq km [India < 2,000; Pakistan < 2,000]

Locations/subpopulations: 11/4, Fragmented

Habitat status: Unknown

Threats

Threats not known for this species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Informal sightings, literature; suspected; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Near Threatened

Rationale: The habitat where it is reported from the region is changing at an unprecedented rate due to civil unrest and expanse of agricultural and pastoral settlements

Pakistan: Near Threatened

Rationale: The habitat where it is reported from the region is changing at an unprecedented rate due to civil unrest and expanse of agricultural and pastoral settlements

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002.

Pakistan: None

LEAST CONCERN in South Asia

CITES: Not listed.

Presence in Protected Areas

None

Recommendations

Research: Survey studies, taxonomic research

Management: Monitoring

Captive stocks: None

Comments

Little known on breeding habits

Sources

S. Chakraborty, 1983; Roberts, 1997; Srinivasulu and Jordan, 2004

Compilers

S.S. Saha, A.K. Chakravarthy, Shomen Mukherjee, A.R. Binu Priya

Reviewers: S. Chakraborty

Recent Field Studies

None

Locations from where *Sicista concolor* (Buchner, 1892) is known in India and Pakistan



Distribution of *Sicista concolor* (Buchner, 1892) in South Asia (India and Pakistan) from literature and field studies

Distribution in
South Asia

INDIA

Jammu and Kashmir

Chillas

Chillas

Nanga Parbat

Gilgit

Astor

Gilgit

Kagnarg Mt. environs

Krishnye Valley

Rupal

Ladakh

Ladakh

PAKISTAN

North West Frontier Province

Chitral

Manshera

Gittidas

Laluser

<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
35°26'	74°05'	Mon.	Chakraborty (pers. Comm.)
		St. F.	
35°15'	74°36'	Mon.	Chakraborty (1983); Roberts (1997)
		St. F.	
35°34'	74°41'	Mon.	Chakraborty (1983)
		St. F.	
35°45'	74°30'	Mon.	Chakraborty (1983)
		St. F.	
-	-	Mon.	Chakraborty (1983)
		St. F.	
-	-	Mon.	Chakraborty (1983), in Warden
		St. F.	
35°11'	74°43'	Mon.	Chakraborty (1983)
		St. F.	
34°00'	78°00'	Mon.	Chakraborty (1983)
		St. F.	
36°15'	72°15'	Temp. F.	Roberts (1997)
-	-	Mon.	Roberts (1997), in Khagan valley (c. 34°25' N & 73°17' E)
		St. F.	
-	-	Mon.	Roberts (1997), in Khagan valley (c. 34°25' N & 73°17' E)
		St. F.	

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Dryomys nitedula* (Pallas, 1778)**

Synonyms: *Mus nitedula* Pallas, 1778; *Myoxus pictus* Blanford, 1875; *Dryomys nitedula picta* (Blanford, 1875)

Order: Rodentia

Family: Gliridae

Common names: English: Forest Dormouse

Taxonomic remarks: Roberts (1997) treated Baluchistan Dormouse (*Dryomys niethammeri* Holden) under *Dryomys nitedula* (Pallas, 1778) which is in fact a distinct species restricted in distribution to southern Baluchistan.

Habit: Nocturnal, arboreal

Habitat: Subtropical montane forest

Niche: Juniper forest, underbrush of honeysuckle and barberry

Elevation: 2,600-3,850m

Distribution

Global: Afghanistan, Austria, Belarus, Bulgaria, China, Czech Republic, Germany, Greece, Hungary, Iran, Iraq, Israel, Italy, Kazakhstan, Kirghizia, Lithuania, Pakistan, Poland, Romania, Russia, Saudi Arabia, Switzerland, Syria, Kazakhstan, Turkmenistan, Turkey, Ukraine, Uzbekistan, Yugoslavia
South Asia: Pakistan

Extent of Occurrence: 101-5,000 sq km [Estimated 4,000 sq km]

Area of Occupancy: 11-500 sq km [Estimated 300-500 sq km]

Locations/subpopulations: 6/4, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% during the last 10 years and a similar trend in the next 10 years is predicted due to microhabitat changes, dwarf mistletoe disease in Juniper, tree cutting

Threats

Habitat loss and degradation due to small-scale logging of juniper, natural predators and disease due to pathogens and parasites

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED** ↓

VULNERABLE in South Asia B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

VULNERABLE in South Asia

Recommendations

Research: Survey, genetic studies, life history, limiting factors, taxonomic research

Management: Monitoring, habitat management, public awareness, wild population management

Captive stocks: None

Comments

Baluchistan Dormouse *Dryomys niethammeri* Holden being established as distinct species known only from a small population in southern Baluchistan, this Pakistan endemic species would qualify to be assessed as Critically Endangered B1ab(ii,iii)+2ab(ii,iii) [Editors]

Sources

Holden, 1996; Woods and Kilpatrick (1997); Roberts, 1997; Srinivasulu and Jordan, 2004

Compilers

Shomen Mukherjee, A.K. Chakravarthy, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Dryomys nitedula* (Pallas, 1778) is known in Pakistan



Distribution of *Dryomys nitedula* (Pallas, 1778) in South Asia (Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
PAKISTAN				
Baluchistan				
Kelat	29°02'	66°34'	Mon.	Roberts (1997); in Juniper forest
Harboi			St. F.	
Ziarat				
Kharwari Baba	30°22'	67°44'	Mon.	Woods & Kilpatrick (1997); in Juniper forest
			St. F.	
Zohb				
Shirani	31°32'	69°10'	Mon.	Roberts (1997); in Chilgoza Pine forest
			St. F.	
North West Frontier Province				
Dir				
Kingergali	35°12'	71°52'	Temp. F.	Roberts (1997); Woods & Kilpatrick (1997); in moist scrub forest
Kohistan				
Pallas	-	-	Temp. F.	Woods & Kilpatrick (1997); in moist temperate forest
Kurram				
Kurram Valley	34°00'	70°00'	Temp. F.	Roberts (1997); in moist temperate forest

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Atherurus macrourus* (Linnaeus, 1758)**

Synonyms: *Hystrix macrourus* Linnaeus, 1758; *Hystrix macroura* (Linnaeus, 1758); *Atherurus assamensis* Thomas, 1921; *Atherurus macrourus assamensis* (Thomas, 1921)

Order: Rodentia

Family: Hystricidae

Common names: English: Asiatic Brush-tailed Porcupine

Taxonomic remarks: Agrawal (2000) basing on the overlap of characters and measurements opined that categorisation of subspecies within *Atherurus macrourus* (Linnaeus, 1758) is not possible and hence maintains that only the nominate species is valid in its range

Habit: Nocturnal, fossorial

Habitat: Subtropical and tropical montane forests

Niche: Forest floor with profuse undergrowth interspersed with cane and bamboo brakes, and palm

Elevation: Up to 750m

Distribution

Global: Bangladesh, China, India, Lao PDR, Malaysia, Myanmar, Thailand, Vietnam

South Asia: Bangladesh, India

Extent of Occurrence: > 20,000 sq km [Bangladesh unknown; India > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh unknown; India > 2,000]

Locations/subpopulations: 5/3, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of > 10% during last 20 years and also a same trend projected for the next 20 years due to expansion of human settlements, change in land use pattern

Threats

Habitat loss due to jhum/shifting agriculture, small-scale logging, subsistence use harvest for food, accidental mortality, collections

Trade: Subsistence use for food, collection for research etc

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Declining

Data source

Indirect information, field study, museum records, informal sightings, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **NEAR THREATENED in South Asia**

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable. Situation is similar in the neighbouring region, hence status retained.

National Status (IUCN Ver. 3.0)

Bangladesh: Data Deficient

Rationale: Although known to occur in Bangladesh, its location is not known.

India: Near Threatened

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable. Situation is similar in the neighbouring region, hence status retained.

NEAR THREATENED in South Asia

Wildlife Legislation:

Bangladesh: None

India: Schedule II of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, limiting factors

Management: Monitoring, habitat management, public awareness

Conservation measures: *Needed:* National level legislative actions, implementation actions, livelihood alternatives

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Jordan, 2004

Compilers

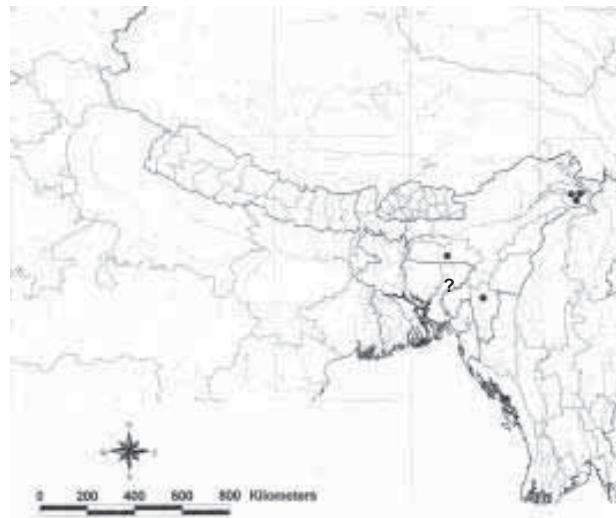
S.S. Saha, Shomen Mukherjee, A.R. Binu Priya

Reviewers: S.S. Saha

Recent Field Studies

S.S. Saha and colleagues, Arunachal Pradesh and Mizoram, 1981-1988, Faunal inventorisation

Locations from where *Atherurus macrourus* (Linnaeus, 1758) is known in Bangladesh and India



Distribution of *Atherurus macrourus* (Linnaeus, 1758) in South Asia (India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang	-	-	Mon.	Agrawal (2000); In Namdapha NP (27°23' - 27°39' N & 96°15' - 96°58' E)
Gandhigram	-	-	St. F.	S.S. Saha (pers. comm.); In Namdapha NP (27°23' - 27°39' N & 96°15' - 96°58' E)
10 km north of Gandhigram	-	-	Mon.	S.S. Saha & T.P. Bhattacharyya (Pers. Comm.); In Namdapha NP (27°23' - 27°39' N & 96°15' - 96°58' E)
10 km north of 77 milestone on MV Road	-	-	Mon.	S.S. Saha & T.P. Bhattacharyya (Pers. Comm.); In Namdapha NP (27°23' - 27°39' N & 96°15' - 96°58' E)
Meghalaya				
West Khasi Hills	-	-	Mon.	Agrawal (2000)
Khasi Hills	-	-	St. F.	
Mizoram				
Aizwal	-	-	Mon.	T.P. Bhattacharyya (pers. comm.)
c. 10 km west of Bilkhawitir	-	-	St. F.	

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Hystrix brachyura Linnaeus, 1758

NEAR THREATENED in South Asia

Synonyms: *Acanthion hodgsoni* Gray, 1847; *Hystrix hodgsoni* (Gray, 1847); *Hystrix hodgsoni hodgsoni* (Gray, 1847); *Hystrix alophus* Hodgson, 1847; *Hystrix bengalensis* Blyth, 1851; *Hystrix subcristata* Swinehoe, 1870; *Acanthion millsii* Thomas, 1922

Order: Rodentia

Family: Hystricidae

Common names: English: Himalayan Crestless Porcupine

Taxonomic remarks: Ellerman and Morrison-Scott (1951), and Ellerman (1961) list *Hystrix hodgsoni* (Gray, 1847) and includes details on *Hystrix hodgsoni hodgsoni* (Gray, 1847) and *Hystrix hodgsoni subcristata* (Swinehoe, 1870). Corbet and Hill (1992) following van Weers (1979) synonymised *Acanthion hodgsoni* Gray, 1847 with *Hystrix brachyura* Linnaeus, 1758

Habit: Nocturnal, fossorial

Habitat: Temperate forests, subtropical and tropical montane forests

Niche: Subterranean, found in rocky areas in tropical moist montane forest

Elevation: Up to 1500m

Distribution

Global: Bangladesh, Borneo, China, India, Laos, Malaysia, Myanmar, Nepal, Sumatra, Thailand, Vietnam

South Asia: Bangladesh, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bangladesh < 5000; India > 20,000; Nepal < 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh < 500; India > 2,000; Nepal < 2,000]

Locations/subpopulations: 23/6, Fragmented

Habitat status: Quantitative and qualitative decline in habitat at the rate of > 10% during last 20 years and also a similar trend projected for the next 20 years due to habitat alterations and infrastructure development

Threats

Habitat loss due to construction of dams, power lines, and other infrastructure development; harvested for medicinal purposes and accidental mortality due to trapping, snaring, netting, shooting

Trade: Local trade for consumption and medicinal use

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Decrease in populations at the rate of < 10% in the last 20 years, and a predicted future decline in the population at the rate of < 10% in 20 years

Data source

Field study, museum records, literature; observed; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) NEAR THREATENED in South Asia

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable. Since there is continuous population decline in South Asia, the status is retained.

National Status (IUCN Ver. 3.0)

Bangladesh: Endangered B1ab(ii,iii,v)+2ab(ii,iii,v)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality, and continuing decline in population. As the population in the neighbouring country is not contiguous, the status for Bangladesh is retained without downgrading.

India: Near Threatened

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable. Since there is continuous population decline in South Asia, the status is retained.

Nepal: Vulnerable ↓ Near Threatened

B1ab(ii,iii,v)+2ab(ii,iii,v)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

Bangladesh: None

India: Schedule II of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Nepal

Central Nepal: Lang Tang NP, Sagarmatha NP; Eastern Nepal: Makalu Barun NP

Recommendations

Research: Survey

Management: Habitat management, captive breeding for benign introductions

Conservation measures: Needed: National level legislative actions, implementation actions, site based actions in Protected areas, Protected area management

Captive stocks: None

Comments

Common in Northeast India, probably may also occur in Bhutan

Sources

Agrawal, 2000; Ellerman, 1961; Mandal *et al.*, 2000; Shreshta, 1997; Srinivasulu and Jordan, 2004

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

ZSI survey team, in Namdapha NP, Arunachal Pradesh, 1981-1988

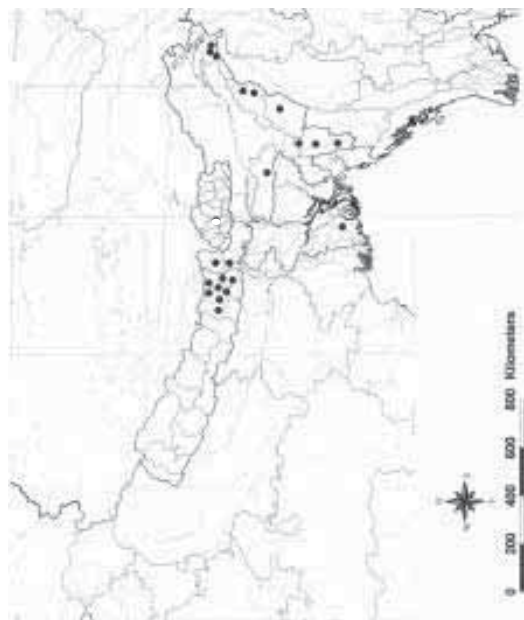
ZSI survey team, in Mizoram, 1994-1995

Distribution of *Hystrix brachyura* Linnaeus, 1758 in South Asia (Bangladesh, India and Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH					NEPAL				
Khulna	29°00'	89°00'	Mang. F.	Agrawal (2000), in Sundarbans	Panchther	27°39'	85°37'	Temp. F.	Shreshta (1997)
Khulna					Sankuwasaba	27°35'	87°20'	Temp. F.	Shreshta (1997)
					Taplejung	27°21'	87°40'	Temp. F.	Shreshta (1997)
INDIA					Central Nepal				
Arunachal Pradesh					Hathibun	-	-	Temp. F.	Ellerman (1961)
Changiang	-	-	Mon. St. F.	Agrawal (2000)	Lang Tang NP	28°16'	85°37'	Temp. F.	Shreshta (1997)
Changiang					Shivapuri	27°48'	85°22'	Temp. F.	Shreshta (1997)
Namdapha NP	27°23' to 27°39'	96°15' to 96°58'	Mon. St. F.	S.S. Saha (pers. comm.), c. 10 km north of Deban	Sindhu Pachok			Temp. F.	Shreshta (1997)
77 milestone on MV Road	-	-	Mon. St. F.	S.S. Saha (pers. comm.); In Namdapha NP (27°23' - 27°39' N & 96°15' - 96°58' E).	Sindhu Pachok	27°55'	85°45'	Temp. F.	Shreshta (1997)
Manipur					Eastern Nepal				
Imphal	24°38'	93°56'	Mon. St. F.	Agrawal (2000)	Makalu Barun NP	27°55'	87°08'	Temp. F.	Shreshta (1997)
Imphal					Sagarmatha NP	27°20'	86°40'	Temp. F.	Shreshta (1997)
Mizoram					Southern Nepal				
Aizwal	24°18'	92°42'	Mon. St. F.	T.P. Bhattacharyya (pers. comm.), c. 5 km SW of Bilkhawtlir	Ilam	26°55'	87°55'	Temp. F.	Shreshta (1997)
Bilkhawtlir					Ilam				
Ngengpui	-	-	Mon. St. F.	Mandal <i>et al.</i> (2000)					
Khawbung									
Meghalaya									
Mawphlang	25°28'	91°46'	Mon. St. F.	Agrawal (2000)					
Mawphlang									
Nagaland									
Sangrachu	-	-	Mon. St. F.	Agrawal (2000)					
Okotsu	-	-	Mon. St. F.	Agrawal (2000)					
Sikkim									
	-	-	Mon. St. F.	Agrawal (2000)					
West Bengal									
Darjeeling	25°45'	88°15'	Mon. St. F.	Agrawal (2000)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Hystrix brachyura* Linnaeus, 1758 is known in Bangladesh, India and Nepal



***Hystrix indica* (Kerr, 1792)**

Synonyms: *Hystrix cristata* var. *indica* Kerr, 1792; *Hystrix leucurus* Sykes, 1831; *Hystrix zeylonensis* Blyth, 1851; *Hystrix malabarica* Sclatter, 1865; *Hystrix hirusirostris blanfordi* Muller, 1911; *Hystrix cuneiceps* Wroughton, 1912
Order: Rodentia

Family: Hystricidae

Common names: English: Indian Crested Porcupine; Sinhalese: *Itthewa*; Oriya: *Jhinka*; Hindi: *Sahi*, *Siyal*; Bengali: *Sajaru*; Urdu (Pakistan): *Say*; Urdu (Bangladesh): *Sohjaru*

Taxonomic remarks: Agrawal (2000) opines that there are no recognised subspecies of this taxon

Habit: Nocturnal, semi-fossorial

Habitat: Tropical and subtropical dry deciduous forests, scrub, grasslands, dry montane forests, semi-deserts, caves, subterranean habitats, agricultural lands

Niche: Subterranean, found in rocky areas and near fields

Elevation: Up to 1200m

Distribution

Global: Afghanistan, Bangladesh, India, Iran, Iraq, Israel, Nepal, Pakistan, Sri Lanka, Turkestan

South Asia: Bangladesh, India, Nepal, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bangladesh > 20,000; India > 20,000; Nepal > 20,000; Pakistan > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh > 2,000; India > 2,000; Nepal > 2,000; Pakistan > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: Many/unknown, Contiguous [In Pakistan the subpopulations are thought to be fragmented; Number of subpopulations are many throughout its range]

Habitat status: Quantitative and qualitative decline in habitat at the rate of < 10% during last 10 years and also a similar trend projected for the next 10 years due to habitat alterations, infrastructure development, excessive use of pesticides. In Pakistan, a similar trend is seen due to urbanisation, shrinkage in feeding grounds

Threats

Habitat loss due to construction of dams, livestock grazing, harvested for local consumption and medicinal purposes and accidental mortality due to trapping, snaring, netting, shooting, poisoning, pest control practices, human induced disturbances, road kills, poaching

Trade: Local trade for consumption, medicinal use

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Decrease in some areas while an increase in other areas where this taxon occurs is seen

Data source

Field study, museum records, literature, informal sightings; observed; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in

South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bangladesh: Least Concern

LEAST CONCERN in South Asia

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation:

Bangladesh: None

India: Schedule IV of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

Pakistan: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Eturnagaram WS; Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Mrugvani NP, Nagarjunasagar Srisailem TR, Nelapattu WS, Pocharam WS, Pranahita WS, Pulicat WS, Siwaram WS, Sri Venkateshwara NP

Kerala: Silent Valley NP **Orissa:** Chandaka-Dampara WS

Rajasthan: Desert NP

Nepal

Karnali WR, Lang Tang NP, Royal Chitwan NP, Shukla Phanta WR

Pakistan

Chinji NP, Changa Manga WS, Hazar Ganji NP, Khanewal Plant S, Kirthar NP, Lal Suhanara NP

Sri Lanka

Galoya NP, Randenigala NP, Wilpattu NP, Yala NP

Recommendations

Research: Life history

Management: Habitat management

Captive stocks: None

Comments

Widely distributed throughout its range. In Bangladesh, this taxon was widely distributed, but is now restricted to few locations due to habitat alterations and hunting

Sources

Agrawal, 2000; Kankane, 2004; Phillips, 1932; Roberts, 1997; Shreshtha, 1997; Srinivasulu and Jordan, 2004; Tiwari *et al.*, 2002; BIS on species by: W.L.D.P.T.S. de A. Goonatilake, 2003; Hassan *et al.*, 2003; P. Padmanabhan, 2003; C. Srinivasulu and Bhargavi Srinivasulu, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

India

Andhra Pradesh:

Srinivasulu, C. and Bhargavi Srinivasulu, Throughout Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh

Srinivasulu, C., Nagarjunasagar Srisaillam Tiger Reserve and Gundla Brahmeshwaram Metta Wildlife Sanctuary, 1996 onwards, Biodiversity of Nallamala Hills

Srinivasulu, C., Kasu Brahmananda Reddy National Park, 2002 onwards, Faunal inventorying (in collaboration with FBS/ZSI, Hyderabad)

Srinivasulu, C. and Bhargavi Srinivasulu, Kurnool grasslands, Hyderabad and Secunderabad environs, Ranga Reddy district and Nagarjunasagar Srisaillam Tiger Reserve, 2002 onwards, Non-Volant small mammals of select areas of Andhra Pradesh

Karnataka:

A.K. Chakravarthy and team in the Western Ghats of Karnataka, 2000 till date, behaviour and ecology, feeding impacts in agricultural systems

Pakistan

Aziz, A., Throughout Pakistan, 1990 onwards, Vertebrate Pest Control Sajid *et al.*, Cholistan desert and Sindh, 1996-2001, Houbara Surveys

Locations from where *Hystrix indica* (Kerr, 1792) is known in Bangladesh, India, Nepal, Pakistan and Sri Lanka



Distribution of *Hystrix indica* (Kerr, 1792) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Chittagong	22°00'	92°00'	Trop. F.	Hassan <i>et al.</i> , BIS	Krishna Vijaywada	16°31'	80°37'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chittagong					Kurnool				
INDIA					Atmakur	15°53'	78°35'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Andhra Pradesh					Kurnool	15°35'	78°00'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Adilabad	19°30'	78°30'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nandyal	15°59'	78°29'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Adilabad	19°02'	79°30'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahanandi	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Bellampally	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahubnagar	16°39'	80°08'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chennai	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Achampet	16°46'	78°09'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Jammaram	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Jacherla	16°30'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Nirmal	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahubnagar	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Uttoor					Mannanur				
Anantapur					Medak	17°45'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Gooty	15°07'	77°38'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Medak	17°44'	78°16'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chittoor					Narsapur	17°37'	78°05'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Trupati	13°39'	79°25'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sangareddy	17°50'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah					Toopran				
Balapalli	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Nalgonda	16°42'	78°56'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah	14°28'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Devarkonda	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Koduru	14°23'	80°09'	Trop. F.	Chakraborty <i>et al.</i> (2004)	Nagarjunasagar Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
East Godavari					Nellore	14°08'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Rajahmundry	16°59'	81°47'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Gudur	15°05'	79°35'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Guntur					Nellore				
Macherla	16°29'	79°26'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nizamabad	18°19'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Pullareddygudem	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Kamareddy				
Hyderabad					Prakasam	15°54'	80°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad	17°22'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Bapatla				
Kasu Brahmananda Reddy NP	17°22'	78°28'	Trop. F.	Srinivasulu <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rangareddy	17°37'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Karimnagar	18°30'	79°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Medchal	17°20'	77°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Karimnagar	18°43'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Vikarabad				
Mahadevpur	18°06'	78°81'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Srikakulam	18°37'	84°14'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Siddipet					Tekkali				
Khammam					Vishakapatnam	18°20'	82°52'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kothagudem	17°33'	80°38'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Araku	17°42'	83°18'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Vishakapatnam				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Hystrix indica* (Kerr, 1792) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Vizianagaram	18°07'	83°25'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sehore	23°12'	77°08'	Trop. F.	Agrawal (2000)
Vizianagaram					Sehore				
Warmagal	18°12'	80°10'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Maharashtra				
Pasra	18°00'	79°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Khandesh	21°00'	75°30'	Trop. F.	Agrawal (2000)
Warangal					Khandesh				
West Godavari	17°27'	81°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Orissa				
Rampa-chodavaram					Khurda and Cuttack				
Gujarat					Ambakhali	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), near about 8°29' N and 76°59' E
Kutch	22°35'	70°00'	Trop. F.	Agrawal (2000)	Bhailumundia	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), near about 8°29' N and 76°59' E
Kutch					Kheluachua	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), near about 8°29' N and 76°59' E
Junagadh									
Junagadh	21°15'	70°20'	Trop. F.	Agrawal (2000)	Rajasthan				
Himachal Pradesh					Barmer and Jaisalmer	-	-	D.	Kankane (2004)
Kangra	32°26'	76°16'	Mon. St. F.	Agrawal (2000)	Desert NP				
Kangra									
Jammu and Kashmir					Jaipur				
Ashkot	-	-	Mon. St. F.	Agrawal (2000)	Sambhar Lake	26°55'	75°12'	Semi D.	Agrawal (2000)
Karnataka					Tamil Nadu				
Dharwar	15°30'	75°20'	Trop. F.	Agrawal (2000)	Dindigul and Madurai	10°12'	77°30'	Trop. F.	Agrawal (2000)
Dharwar					Palni Hills				
					Nligris				
Kerala					Nligris Hills environs	11°24'	76°42'	Trop. F.	Agrawal (2000)
Ernakulam	9°58'	76°14'	Trop. F.	Agrawal (2000)	Uttaranchal				
Cochin					?Almora				
Thiruvananthapuram	8°29'	76°59'	Trop. F.	Agrawal (2000)	Kumaon	29°50'	79°30'	Temp. F.	Agrawal (2000)
Thiruvananthapuram					Uttar Pradesh				
					Agra				
Madhya Pradesh					Agra	27°11'	78°01'	Temp. F.	Agrawal (2000)
Hoshangabad	22°45'	77°30'	Trop. F.	Agrawal (2000)	Bijnor				
Hoshangabad					Bijnor	29°25'	78°31'	Temp. F.	Agrawal (2000)
Shajapur	23°42'	76°01'	Trop. F.	Agrawal (2000)	Philibhit				
Agar					Philibhit	28°33'	80°06'	Temp. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Hystrix indica* (Kerr, 1792) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Saharanpur	29°54'	77°41'	Temp. F.	Agrawal (2000)	SRI LANKA	-	-		
Saharanpur					Aduragala	6°22'	80°10'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
West Bengal					Yagirala FR			Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
Bankura	23°15'	87°15'	Trop. F.	Agrawal (2000)	Central Province				
Bankura					Randenigala	7°12'	80°54'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
Puruliya	23°20'	86°25'	Trop. F.	Agrawal (2000)	Victoriya	7°15'	80°47'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
Puruliya					Kandy	7°17'	80°38'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonati lake, BIS
24 Paraganas	-	-	Trop. F.	Agrawal (2000)	Kandy	7°24'	80°48'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
24 Paraganas					Knuckles FR				
NEPAL					Matale				
Central Nepal					Gammaduwa	7°34'	80°42'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
Royal Chitwan NP	27°35'	84°20'	Mon. St. F.	Shreshta (1997)	Matale	7°31'	80°38'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonati lake, BIS
Far Western Nepal					Owilikanda	7°27'	80°34'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
Shuklia Phanta NP	-	-	Mon. St. F.	Shreshta (1997)	North Central Province				
Mid Western Nepal					Galoya	8°09'	80°50'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
Karnali NP	29°35'	82°10'	Mon. St. F.	Shreshta (1997)	Galoya	8°25'	80°00'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
Lang Tang NP	28°16'	85°37'	Mon. St. F.	Shreshta (1997)	Sabaragamuwa Province				
PAKISTAN					Pittipola	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
Baluchistan					Ranwella	7°15'	80°19'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
					Kinchigune	6°11'	80°45'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
					Warateigoda	6°33'	80°21'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
					Ratnapura				
Punjab					Balangoda	6°38'	80°40'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
Sind					Delwala FR	7°16'	80°07'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
					Sinharaja FR	6°24'	80°30'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS
North West Frontier Province					Southern Province				
					Galle				
					Baddegama	6°10'	80°11'	Trop. F.	W.L.D.P.T.S. de A. Goonati lake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Hystrix indica* (Kerr, 1792) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
Hambantota	6°17'	81°17'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Tissamaharama				
Matara				
Kanneliya	6°17'	80°30'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Yala NP	6°25'	81°30'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Western Province				
Colombo				
Bolgoda	6°42'	79°58'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Horana	6°43'	80°03'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Bombagaskanda	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Kalutara				
Runakanda	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; proposed Forest Reserve

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Acomys dimidiatus* (Cretzschmar, 1826)**

LEAST CONCERN in South Asia

Synonyms: *Mus dimidiatus* Cretzschmar, 1826; *Acomys flavidus* Thomas, 1917

Order: Rodentia

Family: Muridae

Common names: English: Arabian Spiny Mouse; Urdu: *Choocha*

Taxonomic remarks: Much confusion has arisen over the specific identity of species within the *Acomys cahirinus* – *dimidiatus* complex. Ellerman (1961) remarked that *Acomys cahirinus flavidus* (Thomas, 1917) was not distinguishable from *Acomys dimidiatus* (Cretzschmar, 1826). Musser and Carleton (1993) opined that the *cahirinus* – *dimidiatus* complex needed critical systematic revision. However, recently, Denys *et al.* (1994) cited dental characters to clearly separate a number of species within the complex including *Acomys dimidiatus* (Cretzschmar, 1826). Hence, *Acomys dimidiatus* (Cretzschmar, 1826), here, has been considered as a valid species. Distribution in Pakistan was reviewed by Bates (1994) under *Acomys cahirinus* (Desmarest, 1819). At the CAMP workshop basing on the comments, *A. dimidiatus* was considered a valid species as the population of *A. cahirinus* - *dimidiatus* complex east of river Nile is considered *A. dimidiatus*, while the population west of river Nile and Giza as *A. cahirinus*

Habit: Diurnal, fossorial, gregarious

Habitat: Subtropical and tropical dry deciduous and scrub forests

Niche: Rocky crevices

Elevation: 300-1,200m

Distribution

Global: Algeria, Chad, Egypt, Ethiopia, Iran, Iraq, Israel, Jordan, Lebanon, Libya, Mali, Mauritania, Niger, Nigeria, Oman, Pakistan, Saudi Arabia, Sudan, Syria, West Sahara, Yemen

South Asia: Pakistan

Extent of Occurrence: 101-5,000 sq km [Based on inference of areas available between locations currently known to have the species]

Area of Occupancy: 11-500 sq km [Based on the approximate estimate of areas with likely presence]

Locations/subpopulations: 4/2, Fragmented

Habitat status: Unknown

Threats

Threats not known for this species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: This species is inferred to be widely distributed in Pakistan, which is only a marginal proportion of its global distribution. Since no threats are inferred, the status remains Least Concern within the region

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan Sindh: Kirthar NP

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Bates, 1994; Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

M.S. Pradhan, S.S. Talmale, Shomita Mukherjee, C. Rondinini, G. Amori, J. Thapa, S.U. Sarker, M. Siliwal

Reviewers: Mike Jordan, C. Srinivasulu

Recent Field Studies

None

Locations from where *Acomys dimidiatus* (Cretzschmar, 1826) is known in Pakistan



Distribution of *Acomys dimidiatus* (Cretzschmar, 1826) in South Asia (Pakistan) from literature and field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
PAKISTAN				
Baluchistan				
Mekran	25°51'	63°46'	Trop. F.	Ellerman (1961); Roberts (1997)
Karochi Dak				
Gwadar	25°20'	60°55'	Trop. F.	Roberts (1997)
Chabbar				
Sindh				
Sindh	26°16'	67°53'	Trop. F.	Ellerman (1961); Roberts (1997)
Lakhi Hills	25°44'	67°10'	Trop. F.	Roberts (1997)
Kirthar NP				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Alticola albicauda* (True, 1894)**

DATA DEFICIENT

Synonyms: *Arvicola albicauda* True, 1894; *Alticola acmaeus* Schwarz, 1939; *Alticola roylei acmaeus* (Schwarz, 1939); *Alticola roylei albicauda* (True, 1894)

Order: Rodentia

Family: Muridae

Common names: English: White-tailed Mountain Vole

Taxonomic remarks: Ellerman (1961) opined that the skins that were accorded to *Alticola roylei albicauda* (True, 1894) by Hinton (1926) are closer to *Alticola roylei glacialis* (Miller, 1913) and goes on to remark that there exist only one specimen of *Alticola albicauda* (True, 1894). Musser and Carleton (1993) treat it as distinct species and synonymised the name *Alticola roylei acmaeus* (Schwarz, 1939) with it. Agrawal (2000) has not offered any comment on this species. Srinivasulu & Pradhan (2003) opine it to be endemic to South Asia known from disputed land of Pakistan-occupied-Kashmir, India

Habit: Diurnal

Habitat: Unknown

Niche: Unknown

Elevation: Unknown

Distribution

Global: Endemic to India

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: Unknown

Habitat status: Unknown

Threats

Unknown

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum records, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **DATA DEFICIENT**

Rationale: Nothing is known about the species since its type description. The type locality is in a disputed area where not many wildlife surveys have been organised or conducted

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey

Captive stocks: None

Comments

None

Sources

Hinton, 1926; Srinivasulu and Pradhan, 2003

Compilers

Shomen Mukherjee, Mike Jordan, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Alticola albicauda* (True, 1894) is known in India



Distribution of *Aiticola albicauda* (True, 1894) (Endemic to India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Jammu &

Kashmir

Gilgit

Braidu Valley

36°14' 75°52' Temp. F. Hinton (1926); Srinivasulu & Pradhan
(2003); in Baltistan

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Alticola argentatus* (Severtzov, 1879)**

Synonyms: *Arvicola argentata* Severtzov, 1879 ; *Alticola roylei argentata* (Severtzov, 1879)

Order: Rodentia

Family: Muridae

Common names: English: Silver Mountain Vole

Taxonomic remarks: Ellerman (1961) and Agrawal (2000) do not comment any thing significant about this species.

Ellerman and Morrison-Scott (1951) included it under *Alticola roylei* (Gray, 1842). Musser and Carleton (1993) treat it as a distinct species

Habit: Largely diurnal, do not burrow much, live in rock crevices

Habitat: Subtropical and tropical high altitude grasslands

Niche: Montane temperate scrublands and alpine meadows

Elevation: ~3,600m

Distribution

Global: Afghanistan, China, India, Pakistan

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000;

Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Pakistan > 2,000]

Locations/subpopulations: 11/2, Contiguous

Habitat status: Unknown

Threats

High altitude livestock grazing

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, literature; suspected

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened. Since the species is marginally distributed in the region the status is considered the same as the global Least Concern

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, altitudinal distribution

Captive stocks: None

LEAST CONCERN in South Asia

Comments

None

Sources

Ellerman and Morrison-Scott, 1951; Roberts, 1997;

Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Alticola argentatus* (Severtzov, 1879) is known in India and Pakistan



Distribution of *Altilicola argentatus* (Severtzov, 1879) in South Asia (India & Pakistan) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Jammu &

Kashmir

Gilgit 35°54' 74°18' Temp. F. Roberts (1997)
 Gilgit - - Temp. F. Roberts (1997)
 Hunza 36°19' 74°41' Temp. F. Roberts (1997)
 Baltit 36°52' 75°27' Temp. F. Roberts (1997)
 Khunjerab

PAKISTAN

North West Frontier Province

Hazara 34°53' 73°39' Temp. F. Roberts (1997)
 Naran, Kagan Valley
 Burawai 34°56' 73°52' Temp. F. Roberts (1997)
 Saif-ul-Maluk 34°52' 73°41' Temp. F. Roberts (1997)

Swat

Swat Kohistan - Temp. F. Roberts (1997)

Chitral

Chitral 35°50' 71°47' Temp. F. Roberts (1997)
 Dir 35°12' 71°52' Temp. F. Roberts (1997)

Kurram

Safed Koh 34°00' 70°00' Temp. F. Roberts (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Alticola blanfordi* (Scully, 1880)**

VULNERABLE

Synonyms: *Arvicola blanfordi* Scully, 1880; *Alticola blanfordi lahulius* Hinton, 1926; *Alticola roylei blanfordi* (Scully, 1880)

Order: Rodentia

Family: Muridae

Common names: English: Scully's Vole

Taxonomic remarks: Ellerman (1961) treated it as subspecies of *Alticola roylei* (Gray, 1842). Following Ellerman (1961), Agrawal (2000) synonymised *Alticola blanfordi lahulius* Hinton, 1926 with the nominate subspecies *Alticola blanfordi blanfordi* (Scully, 1880). Musser and Carleton (1993) treated *Alticola blanfordi* (Scully, 1880) as a subspecies of *Alticola argentatus* (Severtzov, 1879), while Agrawal (2000) retained it as a distinct species following Hinton (1926)

Habit: Mostly nocturnal, sometimes diurnal and commensal too

Habitat: Subtropical and tropical high altitude rocky areas with conifers in snowline zone [e.g. inland cliffs, mountain peaks]

Niche: Upper limits of coniferous forests to the edge of snowline

Elevation: 2,500 to 3,000m

Distribution

Global: Endemic to India

Extent of Occurrence: > 20, 000

Area of Occupancy: 501-2,000 sq km

Locations/subpopulations: 6/2, Fragmented

Habitat status: Decline in quality of habitat due to grazing

Threats

High altitude livestock grazing

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred; suspected

Status

C.A.M.P. (Ver. 3.1) **VULNERABLE B2ab(iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India None

Recommendations

Research: Survey, altitudinal distribution

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Chakraborty, 1983; Ellerman and Morrison-Scott, 1951; Hinton, 1926; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Alticola blanfordi* (Scully, 1880) is known in India



Distribution of *Aiticola blanfordi* (Scully, 1880) (Endemic to India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Jammu &

Kashmir

Gilgit

Nulitar Valley

36°07' 74°14' Temp. F. Ellerman & Morrison-Scott (1951);
Chakraborty (1983); Agrawal (2000)

North Kashmir

Guimarg

34°03' 74°23' Temp. F. Agrawal (2000)

Himachal

Pradesh

Kangra

Kangra

32°06' 76°16' Temp. F. Agrawal (2000)

Kullu

Kullu

31°58' 77°06' Temp. F. Agrawal (2000)

Lahul & Spiti

Kyelang

Lahul

32°35' 77°02' Temp. F. Agrawal (2000)
32°35' 77°00' Temp. F. Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Alticola montosa* (True, 1894)**

NEAR THREATENED

Synonyms: *Arvicola montosa* True, 1894; *Alticola roylei montosa* (True, 1894); *Microtus imitator* Bonhote, 1905

Order: Rodentia

Family: Muridae

Common names: English: True's Vole

Taxonomic remarks: Ellerman (1961) treated it as a subspecies of *Alticola roylei* (Gray, 1842). Musser and Carleton (1993) treated it as a distinct species

Habit: Diurnal

Habitat: Temperate forest

Niche: Rocky areas, cliffs, caves and sparse forested tracts

Elevation: 2,600-4,300m

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan < 100]

Area of Occupancy: > 2,000 sq km [India > 2,000; Pakistan < 10]

Locations/subpopulations: 7/2, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat conditions due to human settlement and military disturbance

Threats

Anthropogenic activities and military disturbance

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum record, literature; inferred; suspected

Status

C.A.M.P. (IUCN Ver. 3.1) **NEAR THREATENED**

Rationale: Restricted in distribution (high altitude areas) with a few major threats that do not qualify the species to be categorised as Vulnerable than Least Concern

National Status (IUCN Ver. 3.0)

India: Near Threatened

Pakistan: Critically Endangered B1ab(iii)+2ab(iii)

Rationale: Restricted to a single location with major threats affecting habitat area and quality due to war. Since the location is isolated from the neighbouring country population, the category is retained.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India: None

Pakistan: None

Recommendations

Research: Survey, altitudinal distribution

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Ellerman, 1961; Srinivasulu and Pradhan, 2003

Compilers

S.S. Saha, A.K. Chakravarthy, Shomen Mukherjee, A.R. Binu Priya

Reviewers: S. Chakraborty, C. Srinivasulu

Recent Field Studies

None

Locations from where *Alticola montosa* (True, 1894) is known in India and Pakistan



Distribution of *Aitcola montosa* (True, 1894) (Endemic to India & Pakistan) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Jammu &

Kashmir

Gilgit Wazarat
Astor

35°22' 74°52' Temp. F. Agrawal (2000) Ellerman (1961) lists two localities, Rugar and Shenkagalu in Astor

North Kashmir
Guilmarg

34°03' 74°23' Temp. F. Agrawal (2000)

South Kashmir
Pahalgam
Sonemarg

34°02' 75°20' Temp. F. Agrawal (2000)
34°18' 75°18' Temp. F. Agrawal, 2000

Udhampur
Kishtwar

33°19' 75°46' Temp. F. Agrawal (2000) Ellerman (1961) lists two localities, Dangail and Danlong in Kishtawar

PAKISTAN

North West Frontier Province

Hazara
Kagan Valley

34°47' 73°32' Temp. F. Ellerman (1961)

Kurram

Safed Koh

34°00' 70°00' Temp. F. Agarwal (2000) Ellerman (1961) opines that the identification is provisional

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Alticola roylei* (Gray, 1842)**

ENDANGERED

Synonyms: *Arvicola roylei* Gray, 1842; *Alticola roylei cautus* Hinton, 1926

Order: Rodentia

Family: Muridae

Common names: English: Royle's Vole, Royle's High Mountain Vole

Taxonomic remarks: Ellerman (1961) treated it as the one of the two *Alticola* species occurring in the region and listed five subspecies, namely *Alticola roylei roylei* (Gray, 1842), *Alticola roylei cautus* Hinton, 1926 - presently synonymised with the nominate subspecies of *Alticola roylei* (Gray, 1842), *Alticola roylei blanfordi* (Scully, 1880) - presently *Alticola blanfordi* (Scully, 1880), *Alticola roylei montosa* (True, 1894) - presently *Alticola montosa* (True, 1894), and *Alticola roylei glacialis* (Miller, 1913). *Alticola roylei albicauda* (True, 1894) was treated as a form of *Alticola roylei glacialis* (Miller, 1913) by Ellerman (1961) [See comments under *Alticola albicauda* (True, 1894)]. Agrawal (2000) could not remark on two subspecies of the *Alticola roylei* (Gray, 1842), namely *Alticola roylei albicauda* (True, 1894) and *Alticola roylei glacialis* (Miller, 1913) due to lack of specimens

Habit: Mainly diurnal, herbivore, colonial

Habitat: Subtropical and tropical high altitude rocky areas [e.g. inland cliffs, mountain peaks]

Niche: Upper limits of coniferous forests to the edge of snowline

Elevation: 2,500 to 4,300m

Distribution

Global: Endemic to India

Extent of Occurrence: < 20,000 sq km

Area of Occupancy: < 500 sq km

Locations/subpopulations: 3/2, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat conditions due to human settlement and anthropogenic disturbance

Threats

Habitat loss due to livestock grazing, human settlements, and natural disaster like avalanche and landslides

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; indirect information; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED B2ab(iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Uttaranchal: Nanda Devi NP

Recommendations

Research: Survey, altitudinal distribution, limiting factors

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Musser and Carleton, 1993; Srinivasulu and Pradhan, 2003; Tak, 1997

Compilers

A.K. Chakravarthy, Mike Jordan, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Mike Jordan, C. Srinivasulu

Recent Field Studies

None

Locations from where *Alticola roylei* (Gray, 1842) is known in India



Distribution of *Atilicola roylei* (Gray, 1842) (Endemic to India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Himachal

Pradesh

Kullu

Kullu

31°58' 77°06' Temp. F. Agrawal (2000)

Lahul & Spiti

Lahul

32°35' 77°00' Temp. F. Agrawal (2000)

Uttaranchal

? Almora

Kumaon

29°50' 79°30' Temp. F. Musser & Carleton (1993)

Chamoli

Nanda Devi NP

- - Temp. F. Tak (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Alticola stoliczkanus* (Blanford, 1875)**

Synonyms: *Arvicola stoliczkanus* Blanford, 1875; *Microtus acrophilus* Miller, 1899; *Alticola stoliczkanus acrophilus* (Miller, 1899)

Order: Rodentia

Family: Muridae

Common names: English: Stoliczka's Vole

Taxonomic remarks: Ellerman (1961) listed two subspecies, namely *Alticola stoliczkanus stoliczkanus* (Blanford, 1875) and *Alticola stoliczkanus stracheyi* (Thomas, 1880). The latter subspecies has been raised to species level, and Agrawal (2000) consider these as separate species

Habit: Mostly nocturnal, sometimes diurnal

Habitat: Temperate forest

Niche: Bare rocks on mountain peaks

Elevation: above 4,000m

Distribution

Global: Bhutan, China, India, Nepal

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan not known; India < 5,000; Nepal < 20,000]

Area of Occupancy: > 2,000 sq km [Bhutan not known; India < 500; Nepal < 2,000]

Locations/subpopulations: 3/2, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat conditions due to human settlement

Threats

Habitat loss due to infrastructure (road) development and increase in human settlements

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum record, literature; indirect information; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bhutan: Data Deficient

India: Endangered ↓ Vulnerable B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Nepal: Vulnerable ↓ Near Threatened

B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country.

LEAST CONCERN in South Asia

However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Nepal

Eastern Nepal: Makalu Barun NP, Sagar Matha NP

Recommendations

Research: Survey, altitudinal distribution, limiting factors

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Chakraborty, 1983; Shrestha, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, S.S. Saha, Shomen Mukherjee, Mike Jordan, A.R. Binu Priya

Reviewers: Mike Jordan

Recent Field Studies

None

Locations from where *Alticola stoliczkanus* (Blanford, 1875) is known in Bhutan, India and Nepal



Distribution of *Altilicola stoliczkanus* (Blanford, 1875) in South Asia (Bhutan, India & Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jammu & Kashmir				
Ladakh plateau	34°20'	77°25'	Temp. F.	Agrawal (2000); Chakraborty (1983)
NEPAL				
Eastern Nepal				
Makalu Barun NP	27°55'	87°08'	Temp. F.	Shrestha (1997)
Sagar Matha NP	27°59'	86°56'	Temp. F.	Shrestha (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Alticola stracheyi (Thomas, 1880)

Synonyms: *Arvicola stracheyi* Thomas, 1880; *Microtus cricetus* Miller, 1899; *Alticola bhatnagari* Biswas & Khajuria, 1955

Order: Rodentia

Family: Muridae

Common names: English: Thomas' Short-tailed Vole

Taxonomic remarks: Schwarz (1939) and Ellerman (1961) included this species under *Alticola stoliczkanus* (Blanford, 1875). Feng *et al.* (1986) reinstated it as a species (Musser and Carleton, 1993). Biswas and Khajuria (1955) described new species of *Alticola*, named Bhatnagar's Vole *Alticola bhatnagari* Biswas & Khajuria, 1955 from type specimen collected from Mingbo, Lanmoche Valley, Khumbu, Nepal. Agrawal (2000) synonymized this species with *Alticola stracheyi* (Thomas, 1880) based on their similarities in body colour and measurements

Habit: Mostly nocturnal, sometimes diurnal

Habitat: Temperate forest

Niche: High altitude montane forests and meadows

Elevation: above 4,000m

Distribution

Global: China, India, Nepal

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000]

Area of Occupancy: > 2,000 sq km [India > 2,000; Nepal > 2,000]

Locations/subpopulations: 10/3, Fragmented

Habitat status: Unknown, grazing by livestock may affect

Threats

Threats not known for this species or the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum record, literature; observes; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats. Since the species is marginally distributed in the region the status is considered the same as the global Least Concern

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

LEAST CONCERN in South Asia

Recommendations

Research: Survey, altitudinal distribution

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Biswas and Khajuria, 1955; Ellerman, 1961; Musser and Carleton, 1993; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, S.S. Saha, Shomen Mukherjee, Mike Jordan, A.R. Binu Priya

Reviewers: S. Chakraborty

Recent Field Studies

None

Locations from where *Alticola stracheyi* (Thomas, 1880) is known in India and Nepal



Distribution of *Alticola stracheyi* (Thomas, 1880) in South Asia (India & Nepal) from literature and field studies

Distribution in
South Asia

INDIA

Jammu &

Kashmir

	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Ladakh				
Chipchap River	35°18'	77°45'	Temp. F.	Agrawal (2000)
Khardung La	34°17'	77°39'	Temp. F.	Agrawal (2000)
Ladakh	34°20'	77°25'	Temp. F.	Agrawal (2000)
Mipal Valley	-	-	Temp. F.	Agrawal (2000)
Rupshu	32°58'	78°17'	Temp. F.	Agrawal (2000)

Himachal Pradesh

Lahul & Spiti

Kyelang	32°035'	77°02'	Temp. F.	Agrawal (2000)
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NEPAL

Eastern Nepal

Mt. Everest	27°059'	86°56'	Temp. F.	Agrawal (2000)
Mingbo, Khumbu	27°051'	86°49'	Temp. F.	Agrawal (2000); Biswas and Khajuria (1955)
Pheriche, near	27°057'	86°49'	Temp. F.	Agrawal (2000); Biswas and Khajuria (1955)
Lobuje, Khumb				
Thugla, near	27°057'	86°49'	Temp. F.	Agrawal (2000); Biswas and Khajuria (1955)
Lobuje, Khumbu				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Apodemus draco* (Barrett-Hamilton, 1900)**

NEAR THREATENED in South Asia

Synonyms: *Mus sylvaticus draco* Barrett-Hamilton, 1900;
Apodemus sylvaticus draco (Barrett-Hamilton, 1900)

Order: Rodentia

Family: Muridae

Common names: English: South China Wood Mouse

Taxonomic remarks: Ellerman and Morrison-Scott (1951), and Ellerman (1961) treated it as a subspecies of *Apodemus sylvaticus* (Linnaeus, 1758). Ellerman (1941), Corbet (1978), and Corbet and Hill (1991, 1992) treated it as a distinct species

Habit: Nocturnal, fossorial

Habitat: Tropical evergreen and montane rainforest

Niche: Montane rainforest at high altitude along the streams

Elevation: 2,743-3,400m

Distribution

Global: China, India, Myanmar

South Asia: India

Extent of Occurrence: 5001-20,000 sq km

Area of Occupancy: 501-2,000 sq km

Locations/subpopulations: 2/1, Contiguous

Habitat status: Quantitative and qualitative decrease in habitat due to jhum cultivation practices

Threats

Jhum/shifting agriculture

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum record, literature; range of opinion; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE** ↓ **NEAR THREATENED B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, limiting factor

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Ellerman, 1961; Srinivasulu and Pradhan, 2003

Compilers

M.S. Pradhan, S.U. Sarker, Y.P. Sinha, S.S. Talmale, Giovanni Amori, Carlo Rondinini, Joya Thapa, Shomita Mukherjee, Manju Siliwal

Reviewers: S.S. Saha, C. Srinivasulu

Recent Field Studies

None

Locations from where *Apodemus draco* (Barrett-Hamilton, 1900) is known in India



Distribution of *Apodemus draco* (Barrett-Hamilton, 1900) in South Asia (India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Arunachal Pradesh

Lohit
? Location,
Mishmi Hills

- - Mon.
St. F. Agrawal (2000); Ellerman (1961)

Changlang
Namdapha
NP

27°29' 96°11' Mon.
St. F. S.S. Saha (pers. comm.)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Apodemus gurkha* Thomas, 1924**

ENDANGERED

Synonyms: *Apodemus flavicollis gurkha* (Thomas, 1924)

Order: Rodentia

Family: Muridae

Common names: English: Himalayan Wood Mouse

Taxonomic remarks: Ellerman and Morrison-Scott (1951), and Ellerman (1961) considered it as a subspecies of *Apodemus flavicollis* (Melchior, 1834). Corbet and Hill (1992), Musser and Carleton (1993), and Agrawal (2000) considered it as a distinct species

Habit: Nocturnal, terrestrial

Habitat: Temperate forest

Niche: Rhododendron and coniferous forests

Elevation: 2,400-3,500m

Distribution

Global: Endemic to Nepal

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 501-2,000 sq km

Locations/subpopulations: 5/1, Contiguous

Habitat status: Quantitative and qualitative decrease in habitat due to expansion of agriculture

Threats

Agriculture and harvesting by locals for consumption

Trade: Harvested for local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; indirect information; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED B1ab(iii)**

Rationale: Restricted in extent of occurrence, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, limiting factor

Management: Monitoring trade

Captive stocks: None

Comments

None

Sources

Abe, 1971; Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, Manju Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Apodemus gurkha* Thomas, 1924 is known in Nepal



Distribution of *Apodemus gurkha* Thomas, 1924 (Endemic to Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
NEPAL				
Central Nepal				
Gurkha	28°00'	84°38'	Temp.	F. Abe (1971); Agrawal (2000)
Maharigaon	-	-	Temp.	F. Abe (1971); Agrawal (2000)
Gorapani	-	-	Temp.	F. Abe (1971); Agrawal (2000)
Takucha	-	-	Temp.	F. Abe (1971); Agrawal (2000)
Larjung	-	-	Temp.	F. Abe (1971); Agrawal (2000)
Chitara	-	-	Temp.	F. Abe (1971); Agrawal (2000)
Ulleri, upper	-	-	Temp.	F. Abe (1971); Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Apodemus latronum* (Thomas, 1911)**

Synonyms: *Apodemus speciosus latronum* Thomas, 1911;
Apodemus flavicollis latronum (Thomas, 1911)

Order: Rodentia

Family: Muridae

Common names: English: Sichuan Field Mouse

Taxonomic remarks: Ellerman and Morrison-Scott (1951), and Ellerman (1961) considered it as a subspecies of *Apodemus flavicollis* (Melchior, 1834). Feng *et al.* (1986) treated it as a subspecies of *Apodemus draco* (Barrett-Hamilton, 1900). Corbet (1978), and Corbet and Hill (1992) considered it as a distinct species

Habit: Nocturnal, terrestrial

Habitat: Subtropical evergreen and tropical montane forest

Niche: Rhododendron and coniferous forests

Elevation: ~3,400m

Distribution

Global: China, India, Myanmar

South Asia: India

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: Unknown, this taxon is known only basing on a few historic specimens from Arunachal Pradesh

Habitat status: Unknown

Threats

Unknown

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **DATA DEFICIENT in South Asia**

Rationale: This taxon is known only by a few historic specimens from unknown localities in Arunachal Pradesh.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic and genetic research, limiting factor, life history

Management: Monitoring

Captive stocks: None

Comments

Trade in this might be but compilers are not sure about it

DATA DEFICIENT in South Asia

Sources

Corbet & Hill, 1992; Ellerman, 1961; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, Giovanni Amori, C. Rondinini, Manju Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Apodemus latronum* (Thomas, 1911) is known in India



Distribution of *Apodemus latronum* (Thomas, 1911) in South Asia (India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Arunachal

Pradesh

? Location - - - Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Apodemus orestes* (Thomas, 1911)**

Synonyms: *Apodemus speciosus orestes* Thomas, 1911;
Apodemus sylvaticus orestes (Thomas, 1911)

Order: Rodentia

Family: Muridae

Common names: English: Chinese Wood Mouse

Taxonomic remarks: Ellerman (1961) treated *Apodemus orestes* (Thomas, 1911) as a subspecies of *Apodemus sylvaticus* (Linnaeus, 1758). Musser and Carleton (1993) synonymised this species with *Apodemus draco* (Barrett-Hamilton, 1900). However, Corbet and Hill (1992), and Agrawal (2000) treated it as a distinct species

Habit: Nocturnal, terrestrial and semi-fossorial

Habitat: Subtropical and tropical montane forest

Niche: Montane mixed subtropical and tropical evergreen forests

Elevation: 2,743-3,400m

Distribution

Global: China, India, Myanmar

South Asia: India

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 1/1

Habitat status: Unknown

Threats

Threats not known for this species or habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE** ↓ **NEAR THREATENED in South Asia D2**

Rationale: Restricted in area of occupancy (<100sq km) and to 5 or less than 5 locations in South Asia. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, life history

Management: Monitoring

Conservation measures: Needed: Communication/Education awareness

Captive stocks: None

NEAR THREATENED in South Asia

Comments

This species is recorded only from Namdapha National Park in Arunachal Pradesh. Since it is widely distributed in central China and north Myanmar, its range within India is presumed to be in Mishmi Hills. Trade in this might be but compilers are not sure about it.

Sources

Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, Giovanni Amori, C. Rondinini, Manju Siliwal

Reviewers: S.S. Saha, T.P. Bhattacharaya

Recent Field Studies

None

Locations from where *Apodemus orestes* (Thomas, 1911) is known in India



Distribution of *Apodemus orestes* (Thomas, 1911) in South Asia (India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang 10 km w of Gandhigram	27°30'	96°45'	Mon. St. F.	S.S. Saha & T.P. Bhattacharyya (pers. comm.); also at 0 Point.

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Apodemus sylvaticus* (Linnaeus, 1758)**

Synonyms: *Mus sylvaticus* Linnaeus, 1758; *Mus arianus griseus* True, 1894; *Micromys sylvaticus pentax* Wroughton, 1908; *Apodemus sylvaticus pentax* (Wroughton, 1908); *Apodemus flavicollis rusiges* Miller, 1913

Order: Rodentia

Family: Muridae

Common names: English: Wood Mouse

Taxonomic remarks: Ellerman (1961) included two subspecies, namely *Apodemus sylvaticus pentax* (Wroughton, 1908) from Pakistan and *Apodemus sylvaticus orestes* (Thomas, 1911) from China under this species. Agrawal (2000) lists only one subspecies, namely *Apodemus sylvaticus wardi* (Wroughton, 1908) and synonymised *Apodemus flavicollis rusiges* Miller, 1913 and *Apodemus sylvaticus pentax* (Wroughton, 1908) with this taxon based on overlapping morphometry and pelage colouration. Musser and Carleton (1993) treated *Apodemus orestes* (Thomas, 1911) as a synonym of *Apodemus draco* (Barrett-Hamilton, 1900), and considered *Apodemus sylvaticus wardi* (Wroughton, 1908) and *Apodemus flavicollis rusiges* Miller, 1913 as distinct species by themselves. However, we synonymized *Apodemus flavicollis rusiges* Miller, 1913 and included *Apodemus sylvaticus wardi* (Wroughton, 1908) as subspecies of *Apodemus sylvaticus* (Linnaeus, 1758) following Corbet and Hill (1992), and Agrawal (2000). Agrawal (2000) has provided detailed account based on fairly large sample size deposited in Zoological Survey of India collection before concluding on the taxonomic status of the subspecies and species

Habit: Nocturnal, terrestrial

Habitat: Temperate, subtropical and tropical montane forests, scrublands and grasslands

Niche: Hilly areas, arid rocky mountains, sub alpine scrub and meadow, dry temperate coniferous forests, rocky mountains, cold desert, and ruderal

Elevation: 1,850-3,600m

Distribution

Global: Afghanistan, Albania, Algeria, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, China, Croatia, Czech Republic, Denmark, Estonia, France, Georgia, Germany, Greece, Hungary, India, Iran, Iraq, Ireland, Israel, Italy, Jordan, Kyrzygstan, Latvia, Libya, Liechtenstein, Lithuania, Macedonia, Malta, Monaco, Mongolia, Morocco, Nepal, Netherlands, Norway, Pakistan, Poland, Portugal, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Tunisia, Turkey, Turkmenistan, United Kingdom, Uzbekistan

South Asia: India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal < 20,000; Pakistan < 5,000]

Area of Occupancy: > 2,000 sq km [India > 2,000; Nepal < 2,000; Pakistan < 500]

Locations/subpopulations: 13/4, Fragmented

Habitat status: Unknown

Threats

Not known for this species in particular, but the habitats in its range are greatly affected by anthropogenic pressures

Trade: Unknown

Population

Generation time: Unknown

LEAST CONCERN in South Asia

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum records, informal sightings, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Vulnerable ↓ Near Threatened

B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Pakistan: Endangered ↓ Vulnerable

B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

Pakistan: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomy, life history

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Chakraborty, 1983; Ellerman and Morrison-Scott, 1951, Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, Giovanni Amori, C. Rondinini, Manju Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Distribution of *Apodemus sylvaticus* (Linnaeus, 1758) in South Asia (India, Nepal & Pakistan) from literature and field studies

Distribution in Lat. Long. Habitat Notes / Sources

South Asia

INDIA

Jammu & Kashmir

Gilgit 35°54' 74°18' Temp. F. Roberts (1997)

Gilgit Wazarat

Astor 35°22' 74°52' Temp. F. Agrawal (2000); Chakraborty (1983)

Ladakh

Ladakh 34°20' 77°25' Temp. F. Agrawal (2000); Chakraborty (1983); in scrub and grassland

Saspul

Saspul 34°15' 77°01' Temp. F. Agrawal (2000); Chakraborty (1983); in scrub and grassland

North Kashmir

Gulmarg 34°03' 74°23' Temp. F. Agrawal (2000); Chakraborty (1983)

Udhampur

Kishtwar 33°19' 75°46' Temp. F. Agrawal (2000); Chakraborty (1983)

Sardalla

Sardalla - - - Agrawal (2000); Chakraborty (1983)

Gugga Nullah

Gugga Nullah - - - Agrawal (2000); Chakraborty (1983)

Himachal Pradesh

Kullu

Kullu 31°58' 77°06' Temp. F. Agrawal (2000)

Lahul & Spiti

Lahul 32°35' 77°00' Temp. F. Agrawal (2000)

Spiti

Spiti 32°35' 77°25' Temp. F. Agrawal (2000)

Uttaranchal

Almora

Pindhar Valley - - Temp. F. Agrawal (2000)

NEPAL

Central Nepal

? Gurkha 28°00' 84°38' Temp. F. Agrawal (2000)

PAKISTAN

North West Frontier Province

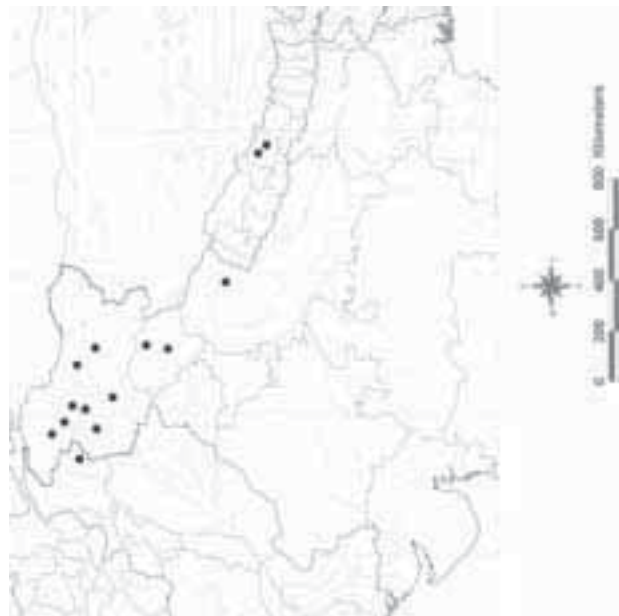
Hazara

Thandiani 34°14' 73°22' Mon. Agrawal (2000)

St. F.

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Apodemus sylvaticus* (Linnaeus, 1758) is known in India, Nepal and Pakistan



***Bandicota bengalensis* (Gray & Hardwicke, 1833)**

LEAST CONCERN in South Asia

Synonyms: *Arvicola bengalensis* Gray & Hardwicke, 1833; *Mus (Neotoma) providens* Elliot, 1839; *Mus kok* Gray, 1837; *Mus dubius* Kelaart, 1850; *Mus deccaensis* Tytler, 1854; *Mus morungensis* Horsfield, 1855; *Mus plurimammis* Horsfield, 1855; *Mus tarayensis* Horsfield, 1855; *Mus (Nesokia) barclayanus* Anderson, 1878; *Mus (Nesokia) blythianus* Anderson, 1878; *Nesokia gracilis* Nehring, 1902; *Gunomys varillus* Thomas, 1907; *Gunomys varius* Thomas, 1907; *Gunomys lordi* Wroughton, 1908; *Gunomys indicus* Wroughton, 1908; *Gunomys kok insularis* Phillips, 1936

Order: Rodentia

Family: Muridae

Common names: English: Lesser Bandicoot-Rat, Indian Mole-Rat, Sind Rice Rat (in Pakistan); Marathi: *Choti Ghoos*; Oriya: *Gatua Musa*; Tamil: *Varappu Eli*; Telugu: *Pandi Kokku*

Taxonomic remarks: Ellerman and Morrison-Scott (1951), and Ellerman (1961) listed five subspecies, namely, *Bandicota bengalensis bengalensis* (Gray & Hardwicke, 1833), *Bandicota bengalensis kok* (Gray, 1837), *Bandicota bengalensis gracilis* (Nehring, 1902), *Bandicota bengalensis varius* (Thomas, 1907), and *Bandicota bengalensis wardi* (Wroughton, 1908). Corbet and Hill (1992) quoting Agrawal and Chakraborty (1976) included three subspecies from the Indo-Malayan region. For South Asia, only two subspecies, namely – *Bandicota bengalensis bengalensis* (Gray, 1835) and *Bandicota bengalensis wardi* (Wroughton, 1908) are valid. The latter subspecies is restricted in to the Himalayan tracts of Jammu & Kashmir and Himachal Pradesh (Agrawal, 2000). Pradhan (1979) and Pradhan *et al.* (2005) have doubted the inclusion of *kok* and *lordi* populations in *Bandicota bengalensis* (Gray & Hardwicke, 1833) on the basis of morphological, osteomorphological and biochemical studies

Habit: Nocturnal, fossorial

Habitat: Subtropical and tropical dry deciduous forests, mangroves, arable lands, inundated paddies and also ruderal
Niche: Bunds and borders of wetlands, gritty soil with high moisture content, pasture, grasslands, agricultural fields, urban areas, bunds of rice fields and uncultivated fields, plains, cultivated fields, wastelands, warehouses, mangroves, human habitations, bushes near water bodies
Elevation: 0-3,500m

Distribution

Global: Bangladesh, India, Myanmar, Nepal, Pakistan, Sri Lanka,

South Asia: Bangladesh, India, Nepal, Pakistan and Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bangladesh > 20,000; India > 20,000; Nepal > 20,000; Pakistan > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh > 2,000; India > 2,000; Nepal > 2,000; Pakistan > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: Many/many, Contiguous

Habitat status: More pro-habitats are being created

Threats

Pest control activities

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, literature, museum specimen; 95% confidence; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver 3.0)

Bangladesh: Least Concern

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation

Bangladesh: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

Pakistan: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram Metta WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunasagar Srisailem TR, Pocharam WS, Pranahita WS, Pulicat WS, Siwaram WS, Sri Venkateshwara NP

Karnataka: Nagarhole NP

Orissa: Chandaka-Dampara WS *Tamil Nadu:* Mudumalai WS

Recommendations

Research: Epidemiological studies

Management: Monitoring

Captive stocks: None

Comments

Introduced in Java and Sumatra (Indonesia), Penang Islands in Malay Peninsula and Saudi Arabia

Sources

Agrawal, 2000; Chakraborty *et al.*, 2004; Chakraborty, 1983; Phillips, 1932, 1935, 1980; Roberts, 1997; Shreshta, 1997; Srinivasulu and Pradhan, 2003; Tiwari, *et al.*, 2002 BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu; Hassan *et al.*; K. Mukta Bai; P. Neelananarayanan; P. Padmanabhan; W.L.D.P.T.S. de A. Goonatilake

Compilers

S.S. Saha, Shomen Mukherjee, A.K. Chakravarthy, S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, S. Goonatilake, Manju Siliwal

Reviewers: Rest of the participants

Recent Field Studies

Bangladesh

Biswajit Chowdhury, Dacca, 1988-1989, Studies on the rats of Dakha city
Fatema Mohsin, Dakha University, 1989-1990, Study of food preference of five species of rodents
Shahida Shams, Dakha University, 1989-1990, Reproductive biology of lesser bandicoot rat (captive study)

India

CAZRI, ICAR, whole network of agriculture, ongoing, management of rodent pest species
Mukta Bai, K and Yashoda, Mysore environs, 1995-1997, Population studies for controlling rodent pests
Srinivasulu, C. and Bhargavi Srinivasulu, Many locations in Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh
Srinivasulu, C., Nagarjunasagar Srisailam Tiger Reserve, 1996 onwards, Biodiversity of Nagarjunasagar Srisailam Tiger Reserve
Srinivasulu, C., Kasu Brahmananda Reddy National Park, 2002 onwards, Faunal inventorying of KBR National Park (in association with ZSI, Hyderabad)
Srinivasulu, C. and Bhargavi Srinivasulu, Kurnool Grasslands, Ranga Reddy, Hyderabad & Secunderabad Environs, and Nagarjunasagar Srisailam Tiger Reserve, 2002 onwards, Non-Volant small mammals of select areas of Andhra Pradesh
Sanjay Molur, 2003-ongoing, Status and distribution of rodents in Coorg Western Ghats

Sri Lanka

Balasubramaniam *et al.*, Morapitiya, Runakanda, Kalutara Dist., 1990, Faunal inventorisation
Balasubramaniam *et al.*, Ranwella, Bolgoda, Kalutara Dist., 1995, Faunal Inventorisation

Locations from where *Bandicota bengalensis* (Gray & Hardwicke, 1833) is known in Bangladesh, India, Nepal, Pakistan and Sri Lanka



Distribution of *Bandicota bengalensis* (Gray & Hardwicke, 1833) in South Asia (Bangladesh, India, Nepal, Pakistan & Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Dhaka	23°50'	90°15'	Comm.	Hassan <i>et al.</i> , BIS	Mahadevpur	18°43'	79°59'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Sawar	24°02'	90°38'	Comm.	Hassan <i>et al.</i> , BIS	Siddipet	18°06'	78°81'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Demra	24°29'	90°40'	Comm.	Hassan <i>et al.</i> , BIS	Khammam	17°33'	80°38'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Jahanimagar University Campus					Kothagudem				
					Krishna Vijaywada	16°31'	80°37'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Machilipatnam	16°10'	81°08'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
INDIA									
Andhra Pradesh									
Adilabad	19°30'	78°30'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kurnool	15°53'	78°35'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Bellampally	19°02'	79°30'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Atmakur	15°35'	78°00'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Jannaram	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kurnool	15°52'	78°16'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Nirmal	19°06'	78°21'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nandikotkur	15°59'	78°29'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Uttoor	19°22'	78°46'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nandyal	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Anantapur					Mahandi	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Gooty	15°07'	77°38'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rollapadu	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chittoor									
Tirupati	13°39'	79°25'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahbubnagar	16°39'	80°08'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Achampet	16°46'	78°09'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Jadcherla	16°30'	78°15'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah					Mahbubnagar	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Balapalli	-	-	Comm.	Chakraborty <i>et al.</i> (2004)	Mannanur	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah	14°28'	78°49'	Comm.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Koduru	14°23'	80°09'	Comm.	Chakraborty <i>et al.</i> (2004)	Medak	17°45'	78°15'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Medak	17°44'	78°16'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
East Godavari					Narsapur	17°37'	78°05'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Coringa WS	17°00'	82°20'	Mang. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sangareddy	17°50'	78°28'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kakinada	16°56'	82°13'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Toopran				
Peddapuram	17°05'	82°08'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Rajahmundry	16°59'	81°47'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nalgonda	16°42'	78°56'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Devarakonda	16°30'	79°13'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Guntur					Nagarjunasagar				
Guntur	16°25'	80°15'	Comm.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Vijayapuri	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Macherla	16°29'	79°26'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nellore	14°08'	79°59'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Pullareddygudem	-	-	Comm.	Chakraborty <i>et al.</i> (2004)	Gudur	15°05'	79°35'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nellore	13°45'	80°10'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad					Sriharikota	13°42'	80°01'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad	17°22'	78°28'	Comm.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sulurpet				
Karimnagar					Nizamabad	18°19'	78°21'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Karimnagar	18°30'	79°15'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kamareddy				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Bandicota bengalensis* (Gray & Hardwicke, 1833) in South Asia (Bangladesh, India, Nepal, Pakistan & Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Prakasam Bapatla	15°54'	80°28'	Comm.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Bharuch Bharuch	21°42'	72°58'	Comm.	Agrawal (2000)
Rangareddy Kapra	17°29'	78°33'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Dangs Dangs	20°45'	73°45'	Trop. F.	Agrawal (2000)
Medchal Vikarabad	17°37'	78°28'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Junagadh Junagadh	21°31'	70°28'	Comm.	Agrawal (2000)
Srikakulam Tekkali	17°20'	77°54'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rajkot Rajkot	22°20'	70°50'	Comm.	Agrawal (2000)
Vishakapatnam Araku	18°37'	84°14'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Surat Surat	20°55'	73°03'	Comm.	Agrawal (2000)
Borra Vishakapatnam	18°20'	82°52'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Vadodara Vadodara	22°50'	73°30'	Comm.	Agrawal (2000)
Vizianagaram Vizianagaram	17°42'	83°18'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Haryana Hissar Hissar	29°10'	79°45'	Comm.	Agrawal (2000)
Warnagal Hannakonda	18°07'	83°25'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kurukshetra Kurukshetra	29°59'	76°51'	Comm.	Agrawal (2000)
Kazipet Pasra	17°58'	79°30'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Himachal Pradesh Chamba Chamba	32°34'	76°08'	Comm.	Agrawal (2000)
Warangal West Godavari	18°12'	80°10'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kangra Kangra	32°06'	76°16'	Comm.	Agrawal (2000)
Rampa-chodavaram	18°00'	79°50'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mandi Mandi	31°45'	77°00'	Comm.	Agrawal (2000)
Assam Barpeta North Kamrup	17°27'	81°46'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Solan Solan	31°05'	76°50'	Comm.	Agrawal (2000)
Golaghat Golaghat	26°20'	91°15'	Comm.	Agrawal (2000)	Sirmour Sirmour	30°45'	77°30'	Comm.	Agrawal (2000)
Bihar Purnea Purnea	36°31'	93°58'	Comm.	Agrawal (2000)	Shimla Shimla	31°10'	77°35'	Comm.	Agrawal (2000)
Gujarat Amreli Amreli	26°00'	87°30'	Comm.	Agrawal (2000)					
	20°52'	70°45'	Comm.	Agrawal (2000)					

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Distribution of *Bandicota bengalensis* (Gray & Hardwicke, 1833) in South Asia (Bangladesh, India, Nepal, Pakistan & Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Jammu & Kashmir									
Kashmir South Srinagar	34°05'	74°50'	SubTr. F. Agrawal (2000); Comm.	Chakraborty (1983)	Mandya Mandya	12°31'	76°53'	Trop. F., Comm.	K. Mukta Bai, BIS
Panarittan	-	-	SubTr. F. Chakraborty (1983)		Mysore Mysore	12°00'	76°30'	Trop. F., Comm.	Agrawal (2000); K. Mukta Bai, BIS
Shar	34°01'	75°00'	SubTr. F. Chakraborty (1983)		Uttar Kannad Kanara	14°53'	74°35'	Trop. F., Comm.	Agrawal (2000)
Rambon	-	-	SubTr. F. Chakraborty (1983)		Kerala				
Jajihar Kotli	32°53'	74°58'	SubTr. F. Chakraborty (1983)		Thrissur Thrissur	10°31'	76°13'	Trop. F., Comm.	Agrawal (2000)
Muzzaffrabad	34°22'	73°28'	SubTr. F. Roberts (1997)		Thiruvananthapuram				
Jharkhand					Thiruvananthapuram	8°29'	76°55'	Comm.	Agrawal (2000)
Palmau	24°02'	84°04'	Trop. F. Agrawal (2000)		Madhya Pradesh				
Daltonganj			Comm.		East Nimar Asirgarh	21°29'	76°16'	Trop. F., Comm.	Agrawal (2000)
Paschim Singhbhum	22°34'	84°49'	Trop. F. Agrawal (2000)		Nimar	21°45'	76°35'	Trop. F., Comm.	Agrawal (2000)
Chaibasa			Comm.		Jabalpur Jabalpur	23°26'	80°05'	Trop. F., Comm.	Agrawal (2000)
Giridih	24°15'	85°55'	Trop. F. Agrawal (2000)		Maharashtra				
Giridih			Comm.		Dhule Dhule	20°54'	74°47'	Comm.	Agrawal (2000)
Karnataka					Mumbai Mumbai	18°58'	72°49'	Comm.	Agrawal (2000)
Bangalore Bangalore	12°59'	77°35'	Comm.	Agrawal (2000)	Pune Poona	18°32'	73°52'	Comm.	Agrawal (2000)
Bellary Bellary	15°15'	76°50'	Comm.	Agrawal (2000)					
Dhanwar Dhanwar	15°30'	75°20'	Comm.	Agrawal (2000)					
Kodagu Madikeri	12°25'	75°24'	Trop. F. Agrawal (2000)						
Kolar Kolar	13°20'	78°10'	Trop. F. Agrawal (2000)						

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Distribution of *Bandicota bengalensis* (Gray & Hardwicke, 1833) in South Asia (Bangladesh, India, Nepal, Pakistan & Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Ratnagiri	17°00'	73°30'	Comm.	Agrawal (2000)	Tamil Nadu				
Ratnagiri					Chennai				
Satara	16°45'	74°30'	Comm.	Agrawal (2000)	Chennai	13°05'	80°17'	Comm.	Agrawal (2000)
Satara					Nagapattinam				
Manipur					Mayiladhuthurai	-	-	Comm.	P. Neelananarayanan, BIS
Senapati	24°38'	93°56'	Comm.	Agrawal (2000)	Putthanampatti	-	-	Comm.	P. Neelananarayanan, BIS
Imphal					Nilgiris				
Meghalaya					Ootacamund	11°24'	76°42'	Comm.	Agrawal (2000)
East Khasi Hills	25°34'	91°53'	Comm.	Agrawal (2000)	Trichy				
Shillong					Omandur	-	-	Comm.	P. Neelananarayanan, BIS
Mizoram					Uttar Pradesh				
Lunglei	22°53'	92°44'	Comm.	Agrawal (2000)	Fatehpur	25°45'	80°45'	Comm.	Agrawal (2000)
Lunglei					Fatehpur				
Mamit	23°44'	92°43'	Comm.	Agrawal (2000)	Gorakhpur	26°55'	83°15'	Comm.	Agrawal (2000)
Aizwal					Gorakhpur				
Orissa					Kanpur	26°27'	80°21'	Comm.	Agrawal (2000)
Baleshwar	21°29'	86°55'	Comm.	Agrawal (2000)	Kanpur				
Baleshwar					Lakhimpur-Kheri	27°00'	81°15'	Comm.	Agrawal (2000)
Ganjam	19°30'	84°30'	Comm.	Agrawal (2000)	Awadh				
Ganjam					Sitapur	27°30'	80°55'	Comm.	Agrawal (2000)
Khurda & Cuttack	20°22'	85°46'	Comm.	Tiwari <i>et al.</i> (2002)	Sitapur				
Chandaka-Dampara WS					Varanasi	25°20'	83°00'	Comm.	Agrawal (2000)
Mayurbhanj	21°45'	86°30'	Comm.	Agrawal (2000)	Varanasi				
Mayurbhanj					Uttaranchal				
Punjab					? Almora	29°15'	79°30'	Comm.	Agrawal (2000)
Ludhiana	30°53'	75°51'	Comm.	Agrawal (2000)	Kumaon				
Ludhiana					West Bengal				
Rajasthan					Bankura	23°15'	87°15'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Bikaner	28°10'	73°10'	Comm.	Agrawal (2000)	Bankura				
Bikaner									
Sirohi	24°36'	72°42'	Comm.	Agrawal (2000)					
Mt. Abu									

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Distribution of *Bandicota bengalensis* (Gray & Hardwicke, 1833) in South Asia (Bangladesh, India, Nepal, Pakistan & Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Bardhaman Asansol	23°41'	86°59'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	Medinipur Medinipur	22°26'	27°20'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Bardhaman	23°15'	87°45'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	Murshidabad Bahrampur	24°06'	88°15'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Birbhum Siuri	23°55'	87°32'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	Murshidabad	24°11'	88°16'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Dakshin Dinajpur Balurghat	25°13'	88°46'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	Nadia Krishanagar	23°24'	88°13'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Darjiling Darjiling	26°45'	88°15'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	North 24 Parganas Bangaon Barasat	-	-	Comm. C. Srinivasulu (pers. comm.) Comm. Agrawal (2000); S. Chakraborty (pers. comm.)	
Jalpaiguri Jalpaiguri	26°30'	88°30'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	Habra	22°50'	88°37'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Raiganj	25°37'	88°07'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	Kolkata	22°34'	88°32'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Haora Sankrail	22°33'	88°12'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	Puruliya Puruliya	23°20'	86°25'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Hugli Chunchura	22°52'	88°23'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	South 24 Parganas Bishnupur	22°23'	88°16'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Uttarpara	22°40'	88°20'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	Uttar Dinajpur Hemtabad	25°41'	88°13'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Koch Bihar Koch Bihar	26°19'	89°26'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	NEPAL Central Nepal Pokhara	28°14'	83°59'	Mon. St. F.	Shrestha (1997)
Matabhanga	26°20'	89°13'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	Syanga	28°00'	83°50'	Mon. St. F.	Shrestha (1997)
Maldah Maldah	25°02'	88°09'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)	PAKISTAN North West Frontier Province Hazara Abbotabad	34°08'	73°12'	Trop. F.	Roberts (1997)

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Distribution of *Bandicota bengalensis* (Gray & Hardwicke, 1833) in South Asia (Bangladesh, India, Nepal, Pakistan & Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Hazara	34°30'	73°15'	Trop. F.	Roberts (1997)	Pinnawala	7°19'	80°24'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Malakand					Northern Province				
Amandara	34°33'	71°57'	Trop. F.	Roberts (1997)	Jaffna	9°40'	80°00'	Comm.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Peshawar	25°51'	63°46'	Trop. F.	Roberts (1997)	Thinney	-	-	Comm.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Swat					North Central Province				
Swat Kohistan	34°20'	71°33'	Trop. F.	Roberts (1997)	Polonaruwa	8°03'	80°46'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Punjab					North Eastern Province				
Faisalabad	31°25'	73°05'	Trop. F.	Roberts (1997)	Batticaloa	7°43'	81°42'	Comm.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Faisalabad	33°36'	73°04'	Trop. F.	Roberts (1997)	North Western Province				
Rawalpindi	32°30'	74°32'	Trop. F.	Roberts (1997)	Kurunegala	7°29'	80°21'	Comm.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Sialkot	32°10'	74°12'	Trop. F.	Roberts (1997)	Sabaragamuwa Province				
Gujranwala	31°43'	73°59'	Trop. F.	Roberts (1997)	Kegalle	7°49'	80°10'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Shekura					Rambukanna				
Sindh					Western Province				
Badin	24°39'	68°51'	Trop. F.	Roberts (1997)	Colombo	6°50'	79°53'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Badin	25°22'	69°44'	Trop. F.	Roberts (1997)	Attidiya	6°55'	79°50'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Jacobabad					Colombo	6°51'	79°51'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Umarkot					Dehiwala	6°52'	79°53'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Thatta	24°24'	67°59'	Trop. F.	Roberts (1997)	Nugegoda				
Chuhar Jamali	24°22'	68°17'	Trop. F.	Roberts (1997)	Kalutara	6°34'	79°57'	Comm.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Jathi	24°08'	67°27'	Trop. F.	Roberts (1997)	Kalutara	6°31'	80°06'	Comm.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Keti Bandar	24°19'	68°04'	Trop. F.	Roberts (1997)	Matugama				
Ladiun	24°45'	67°56'	Trop. F.	Roberts (1997)	Central Province				
Thatha					Elakaduwa	7°25'	80°40'	Comm.	Phillips (1935)
Larkana	27°22'	68°05'	Trop. F.	Roberts (1997)	Kandy	7°17'	80°38'	Comm.	Phillips (1935)
Dokri	27°26'	67°48'	Trop. F.	Roberts (1997)	Galaha	7°12'	80°39'	Comm.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Warah					SRI LANKA				

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***Bandicota indica* (Bechstein, 1800)**

LEAST CONCERN in South Asia

Synonyms: ? *Mus bandicota* Bechstein, 1800; *Mus indicus* Bechstein, 1800; *Mus malabarica* Shaw, 1801; *Mus perchal* Shaw, 1801; *Mus (Rattus) nemorivagus* Hodgson, 1836 ; *Mus macropus* Hodgson, 1845; *Mus (Nesokia) elliotanus* Anderson, 1878

Order: Rodentia

Family: Muridae

Common names: English: Large Bandicoot-Rat; Marathi: *Mothi Ghoos*; Oriya: *Musa*; Tamil: *Perchelli, Paruchali*; Telugu: *Pedda Pandi Kokku*; Sinhala: *Uru-miya*

Taxonomic remarks: Ellerman (1961) listed three subspecies. Chakraborty and Chakraborty (1991), and Agrawal (2000) recognise two subspecies, namely – *Bandicota indica indica* (Bechstein, 1800) and *Bandicota indica nemorivaga* (Hodgson, 1836). The former subspecies is widespread including most of India, Pakistan, and Sri Lanka, while the latter subspecies is restricted in distribution to Nepal, Bangladesh and Northeast India including West Bengal, Meghalaya, Assam, and Manipur. However, Pradhan *et al.* (1993) while revising genus *Bandicota*, have reported a third valid subspecies from Western Ghats in addition to the above mentioned two subspecies. *Bandicota indica malabarica* (Shaw, 1801) is restricted to, but, is widespread in distribution in the Western Ghats. The revisionary studies of genus *Bandicota* reported by Pradhan *et al.* (1993) and Pradhan *et al.* (2005) are based on the latest and widely accepted morpho/osteo-taxonomical, biochem-taxonomical, genetical and hair pattern analytical, techniques.

Habit: Nocturnal, fossorial

Habitat: Subtropical and tropical dry deciduous forests, tropical rainforest, arable lands, gardens, inundated paddies and also ruderal

Niche: Bunds and borders of wetlands, pasture, grasslands, agricultural fields, urban areas, bunds of rice fields and uncultivated fields, plains, cultivated fields, wastelands, warehouses, human habitations

Elevation: 0-3,000m

Distribution

Global: Bangladesh, China, India, Laos, Myanmar, Nepal, Sri Lanka, Taiwan, Thailand, Vietnam

South Asia: Bangladesh, India, Nepal and Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bangladesh > 20,000; India > 20,000; Nepal > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh > 2,000; India > 2,000; Nepal > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: Many/many, Contiguous

Habitat status: More pro-habitats are being created

Threats

Pest control activities, change in land use pattern

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, informal sightings, literature, museum specimen; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: This species is inferred to be widely distributed in India and Sri Lanka, while in other countries this species is restricted in range. Since no threats are inferred, the status remains Least Concern within the region

National Status (IUCN Ver. 3.0)

Bangladesh: Least Concern

India: Least Concern

Nepal: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation

Bangladesh: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunasagar Srisailem TR, Pocharam WS, Pranahita WS, Pulicat WS, Siwaram WS, Sri Venkateshwara NP
Orissa: Chandaka-Dampara Wildlife Sanctuary

Recommendations

Research: Epidemiology studies

Management: Monitoring

Captive stocks: None

Comments

Pakistan distribution as reported by Corbet & Hill (1992) and subsequently by Musser and Carleton (1993), Agrawal (2000) and, Srinivasulu and Pradhan (2003) is erroneous as Roberts (1997) quoting Corbet (*in litt.*, 1994) opines that the species does not occur in Pakistan. Introduced in Kedah and Perlis of Malaysia and Java (Indonesia).

Sources

Agrawal, 2000; Chakraborty *et al.*, 2004; Phillips, 1932, 1935; Shreshta, 1997; Srinivasulu and Pradhan, 2003 BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu; Hassan *et al.*, P. Neelanarayanan; P. Padmanabhan; Visa, A., P.O. Nameer and M.M. Animon; W.L.P.D.T.S. de A. Goonatilake; W.A.M.K. Weerasinghe

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, S. Goonatilake, Manju Siliwal

Reviewers: Rest of the participants

Recent Field Studies

Bangladesh

Biswajit Chowdhury, Dakha, 1988-1989, Studies on the rats of Dakha city
Fatema Mohsin, Dacca University, 1989-1990, Study of food preference of five species of rodents

India

CAZRI, ICAR, whole network of agriculture, ongoing, management of Rodent pest species

Neelamarayanan, P., Puttanampatti and Omandur environs, Trichy dist, Tamil Nadu, 2003, Survey of rodents and insectivores

Padmanabhan, P. *et al.*, Kerala, Survey of small mammals, 1995-1998
Srinivasulu, C. and Bhargavi Srinivasulu, Many locations in Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh

Srinivasulu, C., Nagarjunasagar Srisailem Tiger Reserve, 1996 onwards, Biodiversity of Nagarjunasagar Srisailem Tiger Reserve

Srinivasulu, C., Kasu Brahmananda Reddy National Park, 2002 onwards, Faunal inventorying of KBR National Park (in association with ZSI, Hyderabad)

Srinivasulu, C. and Bhargavi Srinivasulu, Kurnool Grasslands, Ranga Reddy, Hyderabad & Secunderabad Environs, and Nagarjunasagar Srisailem Tiger Reserve, 2002 onwards, Non-Volant small mammals of select areas of Andhra Pradesh

Visa, A., P.O. Nameer and M.M. Animon, LRS, Thiruvazhamkunnu, Palakkad District, February 2003, Diversity and abundance of rodents and insectivores in KAU campus, Palakkad and Thrissur, Kerala

Sri Lanka

Zoysa and Raheem, in Sinharaja FR, 1987, Faunal inventorying

Zoysa and Raheem, Galappatti, in Ambalangoda, Galle dist., 1995, Faunal inventorying
Karunaratne, in Kinchigune, Pilipota, Balangoda, Ratnapura dist., 1992, Faunal inventorying
Ranwella, in Bolgoda, Kalutara dist., 1995, Faunal inventorying
MFC, in Knuckles FR, 1989, Faunal inventorying
Balasubramaniam *et al.*, in Yagirala, Waratulgoda, Runakanda, Kalutara and Galle dists., 1990, Faunal inventorying

L.A. Samarawardane and W.A.M.K. Weerasinghe, in Kekanadura forest area, Matara, 2001-2002, Studies on population, ecology, population distribution, species-resource relationship of Myomorphs in Kekanadura Forest Reserve, Matara.

Locations from where *Bandicota indica* (Bechstein, 1800) is known in Bangladesh, India, Nepal and Sri Lanka



Distribution of *Bandicota indica* (Bechstein, 1800) in South Asia (Bangladesh, India, Nepal & Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Dhaka	23°50'	90°15'	Comm.	Hassan <i>et al.</i> , BIS	Siddipet	18°06'	78°81'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Sawar	24°29'	90°40'	Comm.	Hassan <i>et al.</i> , BIS	Khammam	17°33'	80°38'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Jahaninagar University Campus					Kothagudem				
					Krishna Vijaywada	16°31'	80°37'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Kurnool	15°53'	78°35'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Atmakur	-	-	Comm.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Diguvametta				
					Kurnool	15°35'	78°00'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nandikotkur	15°52'	78°16'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nandyal	15°59'	78°29'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Mahabnagar				
					Achampet	16°39'	80°08'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Jadcherla	16°46'	78°09'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Mahabnagar	16°30'	78°15'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Medak				
					Medak	17°45'	78°15'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Narsapur	17°44'	78°16'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Sangareddy	17°37'	78°05'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nalgonda				
					Devarakonda	16°42'	78°56'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nellore				
					Gudur	14°08'	79°59'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nellore	15°05'	79°35'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Sulurpet	13°42'	80°01'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nizamabad				
					Kamareddy	18°19'	78°21'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Prakasam				
					Bapatla	15°54'	80°28'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Rangareddy				
					Medchal	17°37'	78°28'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Vikarabad	17°20'	77°54'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Srikakulam				
					Tekkali	18°37'	84°14'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Bandicota indica* (Bechstein, 1800) in South Asia (Bangladesh, India, Nepal & Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Vishakapatham Araku Borra	18°20'	82°52'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Karnataka Bangalore Bangalore	12°59'	77°35'	Comm.	Agrawal (2000)
Vishakapatham	17°42'	83°18'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Shimoga Sagar	-	-	Comm.	Agrawal (2000)
Vizianagaram Vizianagaram	18°07'	83°25'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Dharwar Dharwar	15°30'	75°20'	Comm.	Agrawal (2000)
Warangal Hammakonda Kazipet Warangal	17°58' 18°00'	79°30' 79°50'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kodagu Madikeri	12°25'	75°24'	Trop. F., Comm.	Agrawal (2000)
West Godavari Eluru	16°42'	81°06'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kolar Kolar	13°20'	78°10'	Trop. F., Comm.	Agrawal (2000)
Assam Kamrup Kamrup	26°20'	91°15'	Comm.	Agrawal (2000)	Kerala Kasaragod Kasaragod	12°30'	75°00'	Trop. F., Comm.	Agrawal (2000)
Delhi Delhi	28°40'	77°13'	Comm.	Agrawal (2000)	Palakkad Thiruvazhamkundu	-	-	Trop. F., Comm.	Vissa <i>et al.</i> , BIS; Livestock Research Station
Gujarat Banaskantha Palanpur	24°10'	72°26'	Comm.	Agrawal (2000)	Thiruvananthapuram Thiruvananthapuram	8°29'	76°55'	Comm.	Agrawal (2000)
Junagadh Sasan Gir	21°10'	70°36'	Comm.	Agrawal (2000)	Thrissur Vellanikara	-	-	Trop. F., Comm.	Vissa <i>et al.</i> , BIS; Kerala Agric. Univ. Main Campus
Haryana Hissar Hissar	29°10'	79°45'	Comm.	Agrawal (2000)	Madhya Pradesh Balaghat Balaghat	21°58'	80°20'	Trop. F., Comm.	Agrawal (2000)
Kurukshetra Kurukshetra	29°59'	76°51'	Comm.	Agrawal (2000)	Maharashtra Chandrapur Chandrapur	20°00'	80°00'	Comm.	Agrawal (2000)
Jharkhand Hazariabagh Hazariabagh	24°00'	85°15'	Trop. F.	Agrawal (2000)	Mumbai Mumbai	18°58'	72°49'	Comm.	Agrawal (2000)
Goa South Goa Margao	15°18'	73°57'	Trop. F., Comm.	Agrawal (2000)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Bandicota indica* (Bechstein, 1800) in South Asia (Bangladesh, India, Nepal & Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia		Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia		Lat.	Long.	Habitat	Notes / Sources
Nasik		20°13'	74°05'	Comm.	Agrawal (2000)	West Bengal					
Nasik						Bardhaman		23°15'	87°45'	Comm.	Agrawal (2000)
Pune		18°32'	73°52'	Comm.	Agrawal (2000)	Jalpaiguri		26°30'	88°30'	Comm.	Agrawal (2000)
Poona						Jalpaiguri					
Satara		16°45'	74°30'	Comm.	Agrawal (2000)	Howrah		22°45'	88°15'	Comm.	Agrawal (2000)
Satara						Howrah					
Manipur						Hugli		22°45'	88°45'	Comm.	Agrawal (2000)
Senapati		24°38'	93°56'	Comm.	Agrawal (2000)	Hugli					
Imphal						Medinipur		22°26'	27°20'	Comm.	Agrawal (2000)
Meghalaya						Medinipur					
East Khasi Hills		25°30'	91°30'	Comm.	Agrawal (2000)	North 24 Parganas		22°14'	88°27'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Khasi Hills						Barasat					
Orissa						Habra		22°50'	88°37'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Puri		19°46'	85°20'	Comm.	Agrawal (2000)	Kolkata		22°34'	88°32'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Chilika											
Punjab											
Ferozpur		30°20'	74°25'	Comm.	Agrawal (2000)	South 24 Parganas		22°23'	88°16'	Comm.	Agrawal (2000); S. Chakraborty (pers. comm.)
Ferozpur						Bishnupur					
Rajasthan											
Ganganagar		29°30'	74°00'	Comm.	Agrawal (2000)	NEPAL					
Ganganagar						Central Nepal		27°44'	85°18'	Mon.	Shrestha (1997)
Nagaur		26°58'	75°05'	Comm.	Agrawal (2000)	Balaju				St. F.	
Sambhar Lake						Kathmandu		27°43'	85°19'	Mon.	Shrestha (1997)
Tamil Nadu										St. F.	
Chennai		13°05'	80°17'	Comm.	Agrawal (2000)	SRI LANKA					
Chennai						Central Province					
Nagapattinam		-	-	Comm.	P. Neelanarayanan, BIS	Kandy		7°17'	80°38'	Comm.	Phillips (1935); W.L.D.P.T.S. de A. Goonatillake, BIS
Putthanampatti						Kandy					
Trichy		-	-	Comm.	P. Neelanarayanan, BIS	North Eastern Province					
Omandur						Batticaloa		7°43'	81°42'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatillake, BIS
Uttaranchal						Batticaloa					
? Almora		29°15'	79°30'	Comm.	Agrawal (2000)						
Kumaon											

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Distribution of *Bandicota indica* (Bechstein, 1800) in South Asia (Bangladesh, India, Nepal & Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
Sabaragamuwa Province				
Kegalle	7°19'	80°24'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Pinnawala	7°41'	80°10'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Rambukanna				
Southern Province				
Matara	5°56'	80°32'	Comm.	W.A.M.K. Weerasinghe, BIS
Matara				
Western Province				
Colombo	6°50'	79°53'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Attidiya	6°55'	79°50'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Colombo				
Dehiwala	6°51'	79°51'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Kalutara				
Kalutara	6°34'	79°57'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Bandicota maxima* Pradhan et al., 1993**

LEAST CONCERN

Synonyms: *Mus gigantea* Hardwicke, 1804

Order: Rodentia

Family: Muridae

Common names: English: Greater Bandicoot-Rat

Taxonomic remarks: Pradhan et al. (1989) proposed the population of the large sized bandicoot rats from India as *Bandicota gigantea* non Hardwicke, which was not accepted by Corbet and Hill (1992). Later detailed revisionary studies of genus *Bandicota* reported by Pradhan et al. (1993) resulted in describing a new species, *Bandicota maxima* Pradhan et al., 1993. But, while raising some doubts, Agrawal (2000) again tentatively kept *Bandicota maxima* Pradhan et al., 1993 in *Bandicota indica* (Bechstein, 1800). However, the studies reported by Pradhan et al. (1993) were based on the latest and widely accepted morpho/osteotaxonomical, biochem-taxonomical, genetical and hair pattern analytical techniques carried out on freshly collected adult specimens. While following the available keys they found it, rather, impossible at that time to merge the population of large sized bandicoot rats in *Bandicota indica* (Bechstein, 1800) due to distinct differences in number of key characters and treated it as a distinct species. On the basis of the observations made by Pradhan et al. (1993) and Pradhan et al. (comm.), we are retaining *Bandicota maxima* Pradhan et al., 1993. For further details see Pradhan et al. (1993)

Habit: Nocturnal, fossorial

Habitat: Urban areas near garbage dumps and sewers

Niche: Commensal and ruderal

Elevation: ~ 0-1,000m

Distribution

Global: Endemic to India

South Asia: India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: Many/many, Fragmented

Habitat status: More pro-habitats are being created

Threats

Pest control activities

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, informal sightings, literature, museum specimen; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species. No major threats.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Goa: Molem WS

Recommendations

Research: Survey, genetic research, life history, epidemiology studies

Management: Monitoring

Captive stocks: None

Comments

This species is being currently assessed following Pradhan et al. (in press). Previously this species was synonymised with *Bandicota indica* by Agrawal (2000) and treated as distinct by Srinivasulu & Pradhan (2003)

Sources

Agrawal, 2000; Pradhan et al., 1993; Pradhan et al., 2005; Srinivasulu and Pradhan, 2003 BIS on species by: M.S. Pradhan

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, Manju Siliwal

Reviewers: M.S. Pradhan

Recent Field Studies

Pradhan, M.S., A.K. Mandal, A.M. Bhagwat, Pune, India, 1982-91, Taxonomic status of *Bandicota bengalensis lordi* and *Bandicota maxima*

Locations from where *Bandicota maxima* Pradhan et al., 1993 is known in India



Distribution of *Bandicota maxima* Pradhan et al., 1993 (Endemic to India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Goa				
South Goa	15°22'	74°13'	Comm.	Pradhan et al. (1993)
Molem WS				
Maharashtra				
Mumbai	18°58'	72°49'	Comm.	Pradhan et al. (1993)
Mumbai				
Nandurbar	21°22'	74°15'	Comm.	Pradhan et al. (1993)
Nandurbar				
Pune	18°32'	73°52'	Comm.	Pradhan et al. (1993)
Poona				
Kolhapur	-	-	Comm.	Pradhan et al. (1993)
Shangad				
Tamil Nadu				
Chennai	13°05'	80°17'	Comm.	Pradhan et al. (1993)
Chennai				
West Bengal				
North 24 Parganas	-	-	Comm.	Pradhan et al. (1993)
Barisha				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Berylmys bowersi* (Anderson, 1879)**

LEAST CONCERN in South Asia

Synonyms: *Mus bowersii* Anderson, 1879; *Rattus bowersi* (Anderson, 1879)

Order: Rodentia

Family: Muridae

Common names: English: Bower's Rat

Taxonomic remarks: Ellerman (1961) included this species under *Rattus* (*Stenomys*) *bowersi* (Anderson, 1879) and included three subspecies, namely *Rattus bowersi bowersi* (Anderson, 1879); *Rattus bowersi mackenziei* (Thomas, 1916) and *Rattus bowersi feae* (Thomas, 1916). Later, Musser and Newcomb (1983) revised the species belonging to subgenera of *Rattus* Fischer, 1803 and proposed *Berylmys* genus as consisting of four species from the Indo-Malayan region, namely *Berylmys manipulus* (Thomas, 1916); *Berylmys berdmorei* (Blyth, 1851); *Berylmys mackenziei* (Thomas, 1916) and *Berylmys bowersi* (Anderson, 1879). Corbet and Hill (1992), and Agrawal (2000) also followed this scheme

Habit: Nocturnal, fossorial

Habitat: Temperate and subtropical montane forests

Niche: Burrows in cultivated fields, disturbed primary and secondary forests, abandoned jhum, scrub, moist deciduous and evergreen patches

Elevation: 600-1,800m

Distribution

Global: China, India, Lao PDR (North), Malaysia, Myanmar, Sumatra (Northwest), Thailand, Vietnam (North)

South Asia: India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 6/unknown, Contiguous

Habitat status: Unknown

Threats

Threats not known for this species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Informal sightings, literature, museum specimen; subjective; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species. No major threats.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

Trade in this species may be possible but compilers are not sure about it

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, Manju Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Berylmys bowersi* (Anderson, 1879) is known in India



Distribution of *Berymys bowersi* (Anderson, 1879) in South Asia (India) from literature and recent field studies

Distribution in South Asia Lat. Long. Habitat Notes / Sources

INDIA

Arunachal Pradesh

Tirap 27°30' 96°30' Mon. Agrawal (2000)
Tirap St. F.

Manipur

Senapati 25°18' 94°03' Mon. Agrawal (2000)
Karong St. F.
Machi - - Mon. Agrawal (2000)
 St. F.

Meghalaya

East & West Khasi Hills 25°30' 91°30' Mon. Agrawal (2000)
Khasi Hills St. F.

Mizoram

Lunglei 23°10' 92°50' Mon. Agrawal (2000)
Lushai Hills St. F.

Nagaland

Tuensang 26°15' 96°15' Mon. Agrawal (2000)
Mokokchung St. F.

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Berylmys mackenziei* (Thomas, 1916)**

LEAST CONCERN in South Asia

Synonyms: *Epimys mackenziei* Thomas, 1916; *Stenomys mackenziei* (Thomas, 1916); *Rattus wellsi* Thomas, 1921

Order: Rodentia

Family: Muridae

Common names: English: Mackenzie's Rat

Taxonomic remarks: Ellerman (1961) included this as a subspecies of *Rattus (Stenomys) bowersi* (Anderson, 1879).

Later, following revision by Musser and Newcomb (1983) it was upgraded to species status (Corbet and Hill, 1992).

Agrawal (2000) also considers it to be a distinct species

Habit: Nocturnal, fossorial

Habitat: Subtropical montane forests

Niche: Subtropical montane evergreen and moist deciduous patches

Elevation: 1,000-2,000m

Distribution

Global: China, India, Myanmar, Vietnam

South Asia: India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 6/2, Fragmented

Habitat status: Declining in area and quality

Threats

Habitat loss, fragmentation, logging, fires, encroachment

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Informal sightings, literature, museum specimen; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

Trade in this species may be possible but compilers are not sure about it

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, Manju Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Berylmys mackenziei* (Thomas, 1916) is known in India



Distribution of *Berylmys mackenziei* (Thomas, 1916) in South Asia (India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang				
Namdapha NP	27°23' to 27°39'	96°15' to 96°58'	Mon. St. F.	S.S. Saha and S. Chakraborty (pers. comm.); Near 77 milestone on M-V Road
Manipur				
Bishnupur				
Bishnupur	23°05'	87°19'	Mon. St. F.	Agrawal (2000)
Meghalaya				
East Khasi Hills				
Cherrapunji	25°18'	91°42'	Mon. St. F.	Agrawal (2000)
Shillong	25°34'	91°53'	Mon. St. F.	Agrawal (2000)
Mizoram				
Lunglei				
Lushai Hills	23°10'	92°50'	Mon. St. F.	Agrawal (2000)
Nagaland				
Tuensang				
Mokokchung	26°15'	96°15'	Mon. St. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Berylmys manipulus* (Thomas, 1916)**

LEAST CONCERN in South Asia

Synonyms: *Epimys manipulus* Thomas, 1916; *Rattus manipulus kekrimus* Roonwal, 1948

Order: Rodentia

Family: Muridae

Common names: English: Manipur Rat

Taxonomic remarks: Ellerman (1961) included this under the subgenus *Berylmys* Ellerman, 1947, and included two subspecies, namely, *Rattus manipulus manipulus* (Thomas, 1916) and *Rattus manipulus kekrimus* Roonwal, 1948. Corbet and Hill (1992) also indicate this fact. However, Agrawal (2000) synonymised the latter with the former based on the marked morphometric and morphological similarities between the two taxa

Habit: Nocturnal, fossorial, omnivore

Habitat: Subtropical montane forests, high altitude scrublands and grasslands

Niche: Subtropical montane evergreen and moist deciduous patches with oak scrub and bamboo

Elevation: 80-1,650m

Distribution

Global: China, India, Myanmar

South Asia: India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 6/2, Fragmented

Habitat status: Declining in area and quality

Threats

Logging, fires, jhuming, extraction, encroachments

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, museum specimens; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: This species is inferred to be widely distributed in India. Since no threats are inferred, the status remains Least Concern within the region

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

Trade in this species may be possible but compilers are not sure about it

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, Manju Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Berylmys manipulus* (Thomas, 1916) is known in India



Distribution of *Berylmys manipulus* (Thomas, 1916) in South Asia (India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Assam				
Golaghat	26°31'	93°58'	Mon. St. F.	Agrawal (2000)
Golaghat				
Manipur				
Bishnupur	23°05'	87°19'	Mon. St. F.	Agrawal (2000)
Bishnupur				
Imphal	24°38'	93°56'	Mon. St. F.	Agrawal (2000)
Imphal				
Senapati	25°18'	94°03'	Mon. St. F.	Agrawal (2000)
Karong				
Nagaland				
Kohima	25°36'	94°14'	Mon. St. F.	Agrawal (2000)
Kekrima				
Tuensang	26°15'	96°15'	Mon. St. F.	Agrawal (2000)
Mokokchung				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Paddy F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Cannomys badius (Hodgson, 1841)

Synonyms: *Rhizomys badius* Hodgson, 1841

Order: Rodentia

Family: Muridae

Common names: English: Bay Bamboo Rat

Taxonomic remarks: Ellerman (1961) listed three subspecies, namely *Cannomys badius badius* (Hodgson, 1841), *Cannomys badius castaneus* (Blyth, 1843), and *Cannomys badius pater* (Thomas, 1911). Corbet and Hill (1992) also list *Cannomys badius plumbescens* (Thomas, 1915), a subspecies that was earlier synonymised to *Cannomys badius castaneus* (Blyth, 1843) by Ellerman (1961). Agrawal (2000) synonymised all the three subspecies, namely *Cannomys badius castaneus* (Blyth, 1843), *Cannomys badius plumbescens* (Thomas, 1915) and *Cannomys badius pater* (Thomas, 1911) with the nominate subspecies *Cannomys badius badius* (Hodgson, 1841)

Habit: Nocturnal, fossorial

Habitat: Montane temperate forest and bamboo forests in subtropical forest tracts

Niche: Under bamboo clumps

Elevation: Up to 2,000m

Distribution

Global: India, Myanmar, Nepal, Thailand

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000]

Area of Occupancy: > 2,000 sq km [India > 2,000; Nepal < 2,000]

Locations/subpopulations: 16/6, Fragmented

Habitat status: Qualitative and quantitative decline in habitat condition at the rate of > 20% during the past 10 years and also predicted a similar trend in the next 10 years due to agriculture, forest fires and habitat alteration due to jhum cultivation

Threats

Habitat loss due to jhum cultivation, forest fire and harvesting for subsistence use

Trade: Harvested for local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **NEAR THREATENED in South Asia**

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

National Status (IUCN Ver. 3.0)

India: Near Threatened

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Nepal: Vulnerable ↓ Near Threatened
B1ab(ii,iii)+2ab(ii,iii)

NEAR THREATENED in South Asia

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Mizoram: Dampa WS

Nepal Central Nepal: Royal Chitwan NP ; Eastern Nepal:

Makalu Barun NP

Recommendations

Research: Survey, life history, epidemiology, limiting factors

Management: Habitat management, monitoring

Conservation measures: Needed: Community management and livelihood alternatives, and capacity-building/training, awareness and formal education

Captive stocks: None

Comments

This species is restricted in AoO as it is a habitat specialist. Bamboo forest, where they occur, are under threat making this species endangered. Commonly seen is only hearsay but in actual field studies it is less common. Only quick surveys were done, so population details not available. Decline predicted due to shifting agriculture. Restoration of habitat is declining every slash and burn cycle of shifting cultivation. The following affect the population : Interval of the shifting cultivation, the distance between the source population and the cultivation area and in mature forests the flowering plants

Sources

Agrawal, 2000; Shrestha, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Sujit Chakraborty, S.S. Saha, Shomen Mukherjee, A.R. Binu Priya

Reviewers: S.S. Saha, S. Chakraborty

Recent Field Studies

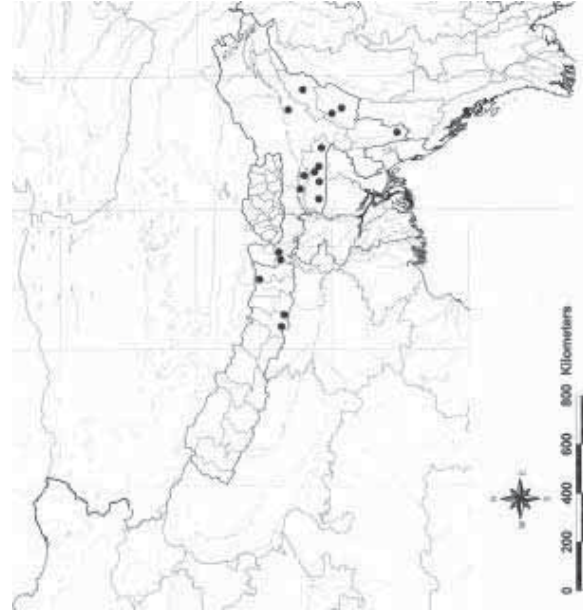
S.S. Saha, Dampa WS & TR, Mizoram, 1995, Faunistic survey

S.S. Saha, Bilkettier, Aizwal, Mizoram, 1999, Faunistic survey

Distribution of *Cannomys badius* (Hodgson, 1841) in South Asia (India and Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA					West Bengal				
Assam					Darjiling	26°45'	88°15'	Trop. F.	Agrawal (2000)
Goalpara	26°43'	89°53'	Mon. St. F.	Agrawal (2000)	Darjiling	26°45'	89°21'	Mon.	Agrawal (2000)
Goalpara					Hashimara			St. F.	
Goleghat					NEPAL				
Goleghat	26°31'	93°58'	Mon. St. F.	Agrawal (2000)	Central Nepal				
South Kamrup	26°20'	91°15'	Mon. St. F.	Agrawal (2000)	Royal Chitwan NP	27°35'	84°20'	Mon. St. F.	Shrestha (1997)
South Kamrup					Eastern Nepal				
Manipur					Makalu Barun NP	27°55'	87°08'	Mon. St. F.	Shrestha (1997)
Bishnupur	24°38'	93°46'	Trop. F.	Agrawal (2000)	Southern Nepal				
Bishnupur					Ilam Hills	26°55'	87°55'	Mon. St. F.	Shrestha (1997)
Tamenglong	24°58'	93°33'	Trop. F.	Agrawal (2000)					
Tamenglong									
Meghalaya									
Garohills	25°30'	90°30'	Trop. F.	Agrawal (2000)					
Garohills									
Jaintia Hills	25°30'	92°15'	Trop. F.	Agrawal (2000)					
Jaintia Hills									
East & West Khasi Hills	25°30'	91°30'	Trop. F.	Agrawal (2000)					
Khasi Hills									
Mizoram									
Aizawl	24°18'	92°42'	Trop. F.	S.S. Saha (pers. comm.); about 10 km north of Bilketier inpatches of mixed forest with bamboo clumps in an area of 120 sq m					
Bilketier									
Dampa TR	-	-	Trop. F.	Agrawal (2000); S.S. Saha (pers. comm.)					
Nagaland									
Unknown	-	-	-	Agrawal (2000)					

Locations from where *Cannomys badius* (Hodgson, 1841) is known in India and Nepal



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Chiropodomys gliroides (Blyth, 1856)

NEAR THREATENED

Synonyms: *Mus gliroides* Blyth, 1856; *Mus peguensis* Blyth, 1859

Order: Rodentia

Family: Muridae

Common names: English: Penciled-tailed Tree-mouse

Taxonomic remarks: Of the five subspecies recognised, the nominate form occurs in the region (Ellerman, 1961; Musser, 1979; Agrawal, 2000)

Habit: Nocturnal, arboreal

Habitat: Tropical and subtropical dry deciduous forest; Found in primary and secondary forests with abundance of bamboo and also in coastal habitats and hills. Bamboo forests, bamboo species with moderate girths are favoured nesting sites

Niche: Bamboo hollows that are between 1 to 3m high from the ground

Elevation: Up to 1,600m

Distribution

Global: Cambodia, China, India, Laos, Malaysia, Myanmar, Thailand, Vietnam and also on Islands of Pulau Nias, Kepulauan Tujuh, Kepulauan Natuna, Java, Bali, Sumatra, South Asia: India

Extent of Occurrence: 5,001-20,000 sq km

Area of Occupancy: 501-2,000 sq km

Locations/subpopulations: 5/3

Habitat status: Qualitative and quantitative decline in habitat condition at the rate of 20 to 50% during the past 20 years and a predicted rate of < 20% in the next 10 years due to expansion of human settlements, clearing of bamboo forest, agriculture, forest fires, subsistence use and habitat alteration due to jhum cultivation

Threats

Habitat loss due to jhum cultivation, small-scale logging, forest fire, clearing of bamboo patches, expansion of human settlements and dam constructions

Trade: Local level harvesting for consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum record, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE ↓ NEAR THREATENED B1ab(ii,iii)+2ab(ii,iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, life history, limiting factors

Management: Habitat management, monitoring

Conservation measures: Needed: Research actions addressing population trends, its monitoring, habitat status and its range

Captive stocks: None

Comments

This species is a habitat specialist. Bamboo forest, where they occur, are under threat making this species vulnerable

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

Shomen Mukherjee, S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal, A.R. Binu Priya, A.K. Chakravarthy

Reviewers: S.S. Saha

Recent Field Studies

Zoological Survey of India, Smithsonian Institute, and Bombay Natural History Society's joint Field Survey, Upper region of the Noa Dihing Catchment Area and Namdapha National Park, Changlang District, Arunachal Pradesh, 1988, Mammals of Namdapha National Park and its vicinity

Locations from where *Chiropodomys gliroides* (Blyth, 1856) is known in India



Distribution of *Chiropodomys gliroides* (Blyth, 1856) in South Asia (India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changliang Ramnagar	-	-	Mon. St. F.	S.S. Saha (pers. comm.), in Namdapha NP (27°23-39' and 96°15-58'); Threats include shifting cultivation and bamboo flowering
Namdapha	27°30'	96°35'	Mon. St. F.	S.S. Saha (pers. comm.), in Namdapha NP (27°23-39' and 96°15-58'); Threats include shifting cultivation and bamboo flowering
Noa Dihing	-	-	Mon. St. F.	S.S. Saha (pers. comm.), in Namdapha NP (27°23-39' and 96°15-58'); Threats include shifting cultivation and bamboo flowering
Manipur				
? Unknown	-	-	-	Agrawal (2000)
Meghalaya				
East Khasi Hills Khasi Hills	25°30'	91°30'	Trop. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Cremnomys blanfordi* (Thomas, 1881)**

LEAST CONCERN

Synonyms: *Mus blanfordi* Thomas, 1881; *Rattus blanfordi* (Thomas, 1881)

Order: Rodentia

Family: Muridae

Common names: English: Blanford's Rat/white-tailed Wood Rat

Taxonomic remarks: Ellerman (1961) placed this species under the subgenus *Rattus* Fischer, 1803, while Misonne (1969) included it under subgenus *Cremnomys* Wroughton, 1912. Agrawal (2000) treated *Cremnomys* Wroughton, 1912 as genus, and reflected the views that it be treated as a genus by itself as suggested by Misonne (1969) and Mishra (1981) based on its morphology and lice fauna respectively

Habit: Nocturnal, terrestrial, sometimes fossorial

Habitat: Tropical and subtropical dry deciduous and scrub forests, moist deciduous and evergreen forests

Niche: Rocky areas, caves, crevices, tree hollows and subterranean habitats,

Elevation: Up to 2,000m

Distribution

Global: Endemic to South Asia

South Asia: Bangladesh, India, Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bangladesh < 20,000; India > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh < 2,000; India > 2,000; Sri Lanka: > 2000]

Locations/subpopulations: 32/many, Fragmented

Habitat status: Unknown

Threats

Threats not known for this species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum record, informal sightings, literature; observed

Status

C.A.M.P. (IUCN Ver. 3.1) LEAST CONCERN

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bangladesh: Vulnerable ↓ Near Threatened D2

Rationale: Restricted to only one location. Since the chances of recolonization is high from the neighbouring country, the category is downgraded.

India: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation:

Bangladesh: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Kerala: Aralam WS, Parambikulam WS, Peechi-Vazhani WS

Maharashtra: Pench NP

Tamil Nadu: Mudumalai WS

Orissa: Chandaka-Dampara WS

Sri Lanka

Eastern Province: Gal Oya NP; Northeastern Province:

Kumana WS; Southern Province: Yala NP

Recommendations

Research: Survey, life history, limiting factors [Bangladesh: survey studies and research]

Management: Monitoring

Captive stocks: None

Comments

Survey and research essential for Bangladesh

Sources

Agrawal, 2000; Musser and Carleton, 1993, Sarker and Sarker, 1988, Srinivasulu and Pradhan, 2003, Tiwari *et al*, 2002 BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu; W.L.D.P.T.S. de A. Goonatilake

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Meena, V., W.L.D.P.T.S. de A. Goonatilake, S. Chakraborty, C. Srinivasulu

Recent Field Studies

Zoological Survey of India, Pench TR, Tadoba TR, Melghat TR, Maharashtra, 1994-2001, Faunistic Survey

Meena, V., Mudumalai WS, Tamil Nadu, 1997, Small mammals distribution

Chakraborty, S., Andhra Pradesh, 1993, Faunistic survey

Locations from where *Cremnomys blanfordi* (Thomas, 1881) is known in Bangladesh, India and Sri Lanka



Distribution of *Cremnomys blanfordi* (Thomas, 1881) (Endemic to Bangladesh, India and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH					Thiruvananthapuram	8°29'	76°55'	Trop. F.	Agrawal (2000)
Sathira	-	-	Trop. F.	Sarker and Sarker (1988)	Thiruvananthapuram			Trop. F.	Agrawal (2000)
INDIA					Thrissur			Trop. F.	P.O. Nameer (pers. comm.)
Andhra Pradesh					Peechi-Vazhani WS	-	-	Trop. F.	P.O. Nameer (pers. comm.)
Adilabad	18°51'	79°48'	Trop. F.	S.Chakraborty (pers. comm.)	Madhya Pradesh				
Chinnur					Hoshangabad	22°40'	77°30'	Trop. F.	Agrawal (2000)
Cuddapah	14°25'	78°45'	Trop. F.	Agrawal (2000); C. Srinivasulu and Bhargavi Srinivasulu, BIS	Hoshangabad			Trop. F.	Agrawal (2000)
Cuddapah					Jabalpur	23°06'	80°05'	Trop. F.	Agrawal (2000)
East Godavari	17°29'	82°01'	Trop. F.	Chakraborty <i>et al.</i> (2004)	Jabalpur			Trop. F.	Agrawal (2000)
Addatigla					Mandla	22°42'	81°00'	Trop. F.	Agrawal (2000)
Karimnagar	18°52'	79°26'	Trop. F.	S.Chakraborty (pers. comm.)	Mandla			Trop. F.	Agrawal (2000)
Mancherial					Mukhi	22°17'	80°37'	Trop. F.	Agrawal (2000)
West Godavari					Maharashtra				
Koraturu	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Nagpur			Trop. F.	Agrawal (2000)
Goa					Pench NP			Trop. F.	Agrawal (2000)
? Location	-	-	Trop. F.	Agrawal (2000)	Nagpur	29°09'	79°06'	Trop. F.	Agrawal (2000)
Jharkhand					Satara	18°43'	73°23'	Trop. F.	Agrawal (2000)
Hazaribagh	24°00'	85°15'	Trop. F.	Agrawal (2000)	Khandala	17°43'	74°05'	Trop. F.	Agrawal (2000)
Hazaribagh					Satara			Trop. F.	Agrawal (2000)
Karnataka					Orissa				
Uttar Kanara	14°53'	74°35'	Trop. F.	Agrawal (2000)	Khurda & Cuttack			Trop. F.	Agrawal (2000)
Kanara					Chandaka-Dampara WS	-	-	Trop. F.	Agrawal (2000)
Mysore	12°00'	76°30'	Trop. F.	Agrawal (2000)	Khendujhargarh	21°30'	85°30'	Trop. F.	Agrawal (2000)
Mysore					Keonjhar	21°56'	86°43'	Trop. F.	Agrawal (2000)
Kerala					Mayurbhanj			Trop. F.	Agrawal (2000)
Ernakulam	9°58'	76°14'	Trop. F.	Agrawal (2000)	Tamil Nadu				
Cochin					Dindigul & Madurai	10°12'	77°30'	Trop. F.	Agrawal (2000)
Kannur					Patni Hills			Trop. F.	Agrawal (2000)
Aralam WS	-	-	Trop. F.	P.O. Nameer (pers. comm.)	Nilgiris			Trop. F.	Meena Venkatraman (1999)
					Mudumalai WS	11°037'	76°34'	Trop. F.	Meena Venkatraman (1999)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Cremnomys blanfordi* (Thomas, 1881) (Endemic to Bangladesh, India and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
Salem	12°00'	78°00'	Trop. F.	Agrawal (2000)
Salem & Dharmapuri	11°50'	78°16'	Trop. F.	Agrawal (2000)
West Bengal				
Puruliya	28°20'	86°25'	Trop. F.	Agrawal (2000)
SRI LANKA				
Southern Prov.				
Hambantota	-	-	S. Eve.	W.L.D.P.T.S.de A. Goonatilake, BIS
Diulpothana	-	-	F.	Semievergreen scrub forest and Chena cultivation. AOO: < 10 sq km. Threats include forest clearance, fire
Tissamaharama	6°17'	81°17'	S. Eve.	W.L.D.P.T.S.de A. Goonatilake, BIS. Same as above
Eastern Prov.				
Ampara	7°05'	81°45'	S. Eve.	W.L.D.P.T.S.de A. Goonatilake, BIS
Galoya NP			F.	

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Paddy F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Cremnomys cutchicus* Wroughton, 1912**

LEAST CONCERN

Synonyms: *Cremnomys australis* Thomas, 1916; *Cremnomys australis siva* Thomas, 1916; *Cremnomys cutchicus leechi* Harrison, 1974; *Cremnomys cutchicus medius* (Thomas, 1916); *Cremnomys medius* Thomas, 1916; *Cremnomys medius caenosa* Thomas, 1916; *Cremnomys medius caenosus* Thomas, 1916; *Cremnomys medius rajput* Thomas, 1916; *Rattus cutchicus* (Wroughton, 1912); *Rattus cutchicus australis* (Thomas, 1916); *Rattus cutchicus cutchicus* (Wroughton, 1912); *Rattus cutchicus rajput* (Thomas, 1916); *Rattus cutchicus siva* (Thomas, 1916)

Order: Rodentia

Family: Muridae

Common names: English: Cutch Rock-rat

Taxonomic remarks: Ellerman (1961) included this under subgenus *Cremnomys* Wroughton, 1912 and recognised five subspecies, namely – *Rattus cutchicus cutchicus* (Wroughton, 1912), *Rattus cutchicus siva* (Thomas, 1916), *Rattus cutchicus australis* (Thomas, 1916), *Rattus cutchicus medius* (Thomas, 1916), and *Rattus cutchicus rajput* (Thomas, 1916). Corbet and Hill (1992) list *Cremnomys medius caenosus* Thomas, 1916, *Cremnomys medius rajput* Thomas, 1916, *Cremnomys australis siva* Thomas, 1916, and *Cremnomys cutchicus leechi* Harrison, 1974. Agrawal (2000) considered all the subspecies listed by Ellerman (1961) not being different from one another based on studies carried out on the specimens present with Zoological Survey of India and Bombay Natural History Society and synonymised them with *Cremnomys cutchicus* Wroughton, 1912

Habit: Nocturnal, fossorial

Habitat: Tropical and subtropical dry deciduous forests and deserts

Niche: Thorn scrub sparse vegetation, plain grasslands, agriculture lands and rocky areas

Elevation: 150 to 1,500m

Distribution

Global: Endemic to India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 24/many, Fragmented

Habitat status: Qualitative and quantitative decline in habitat condition at the rate of < 5% during the past 10 years and a predicted rate of < 20% in the next 10 years due to expansion of human settlements and agriculture

Threats

Expansion of agriculture

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum record, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species. No major threats.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Sri Lanka Malleshwara WS

Recommendations

Research: Survey, life history, limiting factors

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Chakraborty *et al.*, 2004; Srinivasulu and Pradhan, 2003 BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: S. Chakraborty, C. Srinivasulu

Recent Field Studies

Chakraborty, S. and V. C. Agrawal, Gujarat, 1988-1991, Faunistic survey of Gujarat State S. Chakraborty, Rajasthan, 1998-2003, Faunistic survey of Rajasthan State

Locations from where *Cremnomys cutchicus* Wroughton, 1912 is known in India



Distribution of *Cremnomys cutchicus* Wroughton, 1912 (Endemic to India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
INDIA									
Andhra Pradesh									
Cuddapah	14°25'	78°45'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Kolar	13°10'	78°10'	Trop. F.	Agrawal (2000)
Cuddapah	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Kolar	12°00'	76°30'	Trop. F.	Agrawal (2000)
Bhadrachalam	14°15'	78°50'	Trop. F.	Chakraborty <i>et al.</i> (2004)					
Dasarifoddi	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)					
Kammampalem	14°26'	78°55'	Trop. F.	Chakraborty <i>et al.</i> (2004)					
Siddavatam									
Hyderabad									
Hyderabad	17°22'	78°28'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Jaisalmer	26°55'	70°54'	D.	Agrawal (2000)
Kurnool					Jaisalmer				
Kurnool	15°35'	78°20'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Jalore	25°10'	72°15'	D.	Agrawal (2000)
Nellore					Jalore				
Kavali	14°55'	79°59'	Trop. F.	Chakraborty <i>et al.</i> (2004)	Jodhpur	26°17'	73°01'	D.	Agrawal (2000)
Nizamabad					Jodhpur				
Mallaram	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Jhunjhunu	28°08'	75°24'	Semi D.	Agrawal (2000)
					Jhunjhunu				
Bihar					Pali	25°46'	73°20'	Semi D.	Agrawal (2000)
Gaya	24°47'	85°00'	Trop. F.	Agrawal (2000)	Pali				
Gaya					Sirohi	24°50'	72°55'	Semi D.	Agrawal (2000)
					Sirohi				
Gujarat									
Junagadh	21°10'	70°30'	Trop. F.	Agrawal (2000)					
Junagadh									
Kutch	23°30'	70°15'	Trop. F.	Agrawal (2000)					
Kutch									
Banaskantha	24°10'	72°26'	Trop. F.	Agrawal (2000)					
Banaskantha									
Jharkhand									
Hazaribagh	24°00'	80°15'	Trop. F.	Agrawal (2000)					
Hazaribagh									
Karnataka									
Bellary	15°23'	77°14'	Trop. F.	Agrawal (2000)					
Bellary									

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Cretnomys elvira* (Ellerman, 1947)**

CRITICALLY ENDANGERED

Synonyms: *Rattus* (*Cretnomys*) *elvira* Ellerman, 1947

Order: Rodentia

Family: Muridae

Common names: English: Large Rock-rat

Taxonomic remarks: Ellerman (1961) treated it under subgenus *Cretnomys* Wroughton, 1912. This is an endemic rat from Eastern Ghats of Tamil Nadu, India. Musser and Carleton (1993) remark that this species is "still represented by a few specimens from the region of the type locality"

Habitat: Nocturnal, fossorial

Habitat: Tropical and subtropical dry deciduous scrub forest

Niche: Rocky areas

Elevation: ~600m

Distribution

Global: Endemic to India

Extent of Occurrence: < 100 sq km

Area of Occupancy: < 10 sq km

Locations/subpopulations: 1/1

Habitat status: Qualitative and quantitative decline in habitat condition at the rate of 20 to 50% during the past 10 years and a predicted rate of < 20% in the next 20 years due to expansion of human settlements, tree felling for fuel wood collection, and changes in land use patterns

Threats

Habitat loss conversion of forests to agriculture lands and plantations, fuel wood collection

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum record, literature; observed; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) **CRITICALLY ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, single location with major threats affecting habitat area and quality.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history, limiting factors, epidemiology

Management: Habitat management, monitoring

Captive stocks: None

Comments

Surveys by the pest control department have not indicated

the presence of this species in other localities which could indicate a highly restricted distribution

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: S. Chakraborty

Recent Field Studies

S. Chakraborty, Salem district, Tamil Nadu, 1978-79, District Faunistic Survey

Locations from where *Cretnomys elvira* (Ellerman, 1947) is known from India



Distribution of *Cremnomys elvira* (Ellerman, 1947) (Endemic to India) from literature and recent field studies

Distribution in
South Asia

Lat.

Long.

Habitat

Notes / Sources

INDIA

Tamil Nadu

Salem

Kurumbapatti

12°00' 78°00' Trop. F. Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Dacnomys millardi* Thomas, 1916**

Synonyms: *Dacnomys wroughtoni* Thomas, 1922

Order: Rodentia

Family: Muridae

Common names: English: Millard's Rat

Taxonomic remarks: Ellerman (1961) and Agrawal (2000) included two subspecies under this species. Musser (1981) reviewed this genus in detail.

Habit: Not known

Habitat: Tropical and subtropical montane and evergreen forest

Niche: Hilly regions in forest areas

Elevation: 1,050-1,830m

Distribution

Global: China, India, Lao PDR, Nepal

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal < 5,000]

Area of Occupancy: 501-2,001 sq km [India < 2,000; Nepal < 500]

Locations/subpopulations: 4/4, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat due to deforestation and human interference

Threats

Deforestation due to anthropogenic activities

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE ↓ NEAR THREATENED B2ab(iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

National Status (IUCN Ver. 3.0)

India: **Vulnerable ↓ Near Threatened B2ab(iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/ recolonisation, it is downgraded by one category.

Nepal: **Endangered ↓ Vulnerable B1ab(iii)+2ab(iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

NEAR THREATENED in South Asia

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

Trade in this species might be there but compilers are not sure about it

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

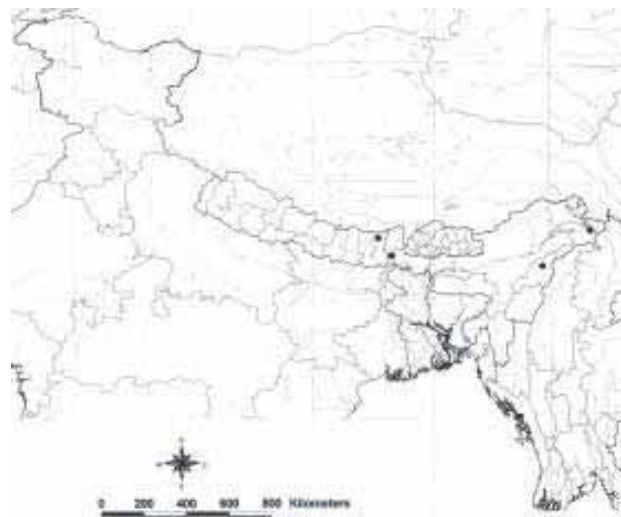
S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Dacnomys millardi* Thomas, 1917 is known in India and Nepal



Distribution of *Dacnomys millardi* (Thomas, 1916) in South Asia (India and Nepal) from literature field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Lohit	28°15'	98°00'	Mon.	Agrawal (2000), in Mishmi Hills
Dreyi			St. F.	
Nagaland				
Okotso	-	-	Mon.	Agrawal (2000)
			St. F.	
West Bengal				
Darjiling	26°59'	88°17'	Mon.	Agrawal (2000)
Gopaldhara			St. F.	
NEPAL				
Eastern Nepal	-	-	-	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Diomys crumpi Thomas, 1917

ENDANGERED in South Asia

Synonyms: None

Order: Rodentia

Family: Muridae

Common names: English: Crump's Mouse

Taxonomic remarks: Ellerman (1961) mentions about a series of skulls from Frost collection, Manipur. Although, Musser and Newcomb (1983) report its occurrence from North Myanmar, we retain this taxon as regional endemic considering the population as 'spilled'. The description of the species is based on a broken skull mismatched with a specimen of *Millardia meltada* from Penasnatha Hills, Bihar. The species has not subsequently been found at the type locality in Bihar and it remains doubtful if the type locality was correctly recorded (Corbet & Hill, 1992)

Habitat: Nocturnal, fossorial

Habitat: Tropical evergreen, temperate broad leaved, moist deciduous forest

Niche: Forest dweller

Elevation: 1,000-2,000m

Distribution

Global: India, Myanmar, Nepal

South Asia: India, Nepal

Extent of Occurrence: 101-5,000 sq km [India < 5,000; Nepal < 5,000]

Area of Occupancy: 11-500 sq km [India < 500; Nepal < 500]

Locations/subpopulations: 3/3, Fragmented

Habitat status: Decline in area and quality of habitat

Threats

Loss of habitat, encroachments, forest fires

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, museum, indirect information; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED** in South Asia **B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. Since the populations are severely fragmented, the category is retained.

National Status (IUCN Ver. 3.0)

India: Endangered B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. Since the populations are severely fragmented, the category is retained.

Nepal: Endangered B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. Since the populations are severely fragmented, the category is retained.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: None

Captive stocks: None

Comments

Previous records of this species are doubtful based on reports from Corbet & Hill (1992)

Sources

Agrawal, 2000; Corbet and Hill, 1992; Ellerman, 1961; Musser and Carleton, 1993; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

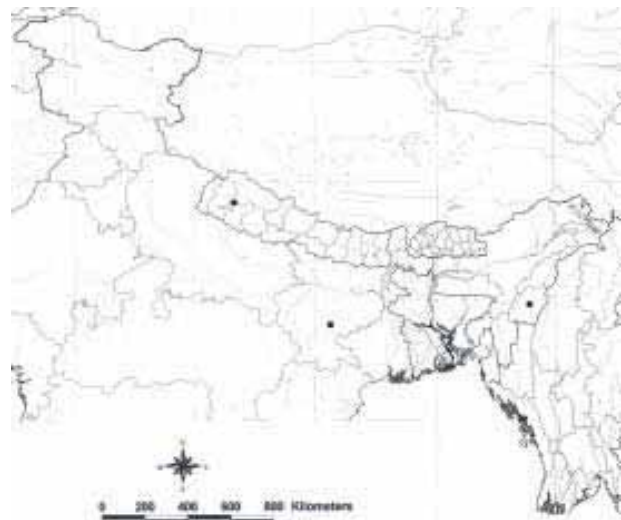
Reviewers: T. P. Bhattacharyya, Sujit Chakraborty, C. Srinivasulu

Recent Field Studies

India

ZSI, Bhattacharyya, T.P., in Manipur, Bishenpur dist., India, 1991-1992, Species survey

Locations from where *Diomys crumpi* Thomas, 1917 is known from India and Nepal



Distribution of *Diomys crumpi* Thomas, 1917 in South Asia (India and Nepal) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jharkhand				
Giridh	23°58'	86°08'	Trop. F.	Agrawal (2000)
Parasnath				
Manipur				
Bishnupur	24°38'	93°46'	Trop. F.	Agrawal (2000), Ellerman (1961) record of this species from this location has been expressed to be doubtful after conducting a 10 day survey in that area that yielded no sighting or trapping of this species (Bhattacharyya, pers. comm.)
Bishnupur				
NEPAL				
Western Nepal	-	-	Mon. St. F.	Musser and Carleton (1993); Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Ellobius fuscocapillus (Blyth, 1842)

Synonyms: *Georhynchus fuscocapillus* Blyth, 1842
Order: Rodentia
Family: Muridae
Common names: English: Afghan Mole-vole, Quetta Mole-vole
Taxonomic remarks: None
Habit: Nocturnal, sometimes diurnal; fossorial, herbivore, gregarious
Habitat: Desert and semi-desert areas
Niche: Arid montane slopes
Elevation: 1,800-2,600m

Distribution

Global: Afghanistan, Iran, Pakistan, Turkmenistan
South Asia: Pakistan
Extent of Occurrence: 11-5,000 sq km [Estimation is based on the given distribution of this species by Roberts (1997)]
Area of Occupancy: 11-500 sq km
Locations/subpopulations: 2/2, Fragmented
Habitat status: Quantitative and qualitative decrease in habitat due to human induced changes, loss of feeding grounds and drought

Threats

Natural calamities such as drought, wildfires, avalanches and landslides and interspecific competitors
Trade: Unknown

Population

Generation time: Unknown
Total population: Unknown
Mature individuals: Unknown
Population trend: Though stable, a decrease in the population at the rate of 10% or more in last 10 years was noted and a similar trend could be predicted in the future

Data source

Field study, museum record, literature; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED** ↓

VULNERABLE B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan *Baluchistan*: Torgar NR

Recommendations

Research: Survey

Management: Habitat management

Captive stocks: None

Comments

None

VULNERABLE in South Asia

Sources

Roberts, 1997, 1999

Compilers

Shomen Mukherjee, S.S. Saha, A.K. Chakravarty, A.R. Binu Priya

Reviewers: Mike Jordan

Recent Field Studies

Pakistan

Charles Woods and Khalid Baig, Tanishpa, Toba Kakar Range, Baluchistan, 1996-97, Study of small mammals of Pakistan
Roberts, T.J., Torgah Nature Reserve, Torgah Range, Zohb, Baluchistan, 1997-98, Status survey of *Ellobius fuscocapillus* in Zohb, Pakistan

Locations from where *Ellobius fuscocapillus* (Blyth, 1842) is known in Pakistan



Distribution of *Elobius fuscocapillus* (Blyth, 1842) in South Asia (Pakistan) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
PAKISTAN				
Baluchistan				
Zhob	31°12'	68°26'	Mon.	Roberts (1999); in Torghar Range in
Tanishpa			St. F.	Torghar NR
Torghar	31°08'	68°49'	Mon.	Roberts (1999); in Torghar Range in
			St. F.	Torghar NR

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Eothenomys melanogaster (Milne-Edwards, 1871)

VULNERABLE in South Asia

Synonyms: *Arvicola melanogaster* Milne-Edwards, 1871

Order: Rodentia

Family: Muridae

Common names: English: Pere David's Vole

Taxonomic remarks: Ellerman (1961) included two subspecies, namely *Eothenomys melanogaster cachinus* (Thomas, 1921) and *Eothenomys melanogaster ibonotus* Hinton, 1923. The former subspecies is not of our interest as it is reported from Myanmar. Corbet and Hill (1992) and Agrawal (2000) include only the latter subspecies for India

Habit: Diurnal, fossorial

Habitat: Tropical and subtropical montane, temperate forest

Niche: Subterranean, found in the leaf litter on the forest floor.

Frequents wooded jungles and grassy meadows (Agrawal, 2000) and transition zones between temperate broad leaved and subtropical forests

Elevation: > 300m

Distribution

Global: China, India, Myanmar, Taiwan

South Asia: India

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 2/1, Contiguous

Habitat status: Quantitative and qualitative decrease in the habitat at the rate of < 10% in the last ten years and a similar trend in less than 25 years is predicted due to human settlements and agricultural practices

Threats

Habitat loss and degradation due to expansion of agriculture, small-scale logging, human settlements

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED** ↓

VULNERABLE in South Asia B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, genetic research, life history, epidemiology

Management: Monitoring

Captive stocks: None

Comments

Only Chang Lang and Lohit districts were surveyed. May be located in the contiguous forests in the southern slopes of the Daphabum mountain range that is more than 125 km long.

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: S.S. Saha

Recent Field Studies

None

Locations from where *Eothenomys melanogaster* (Milne-Edwards, 1871) is known in India



Distribution of *Eothenomys melanogaster* (Milne-Edwards, 1871) in South Asia (India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang Upper catchment area of Noa Dihing river	-	-	Trop. F.	S.S. Saha (pers. comm.), From Vijaynagar west through Ramnagar and Gandhigram. Threats include: forest clearing, habitat degradation due to gradual conversion of forests for agriculture and human settlement
Lohit Mishmi Hills	28°40'	96°10'	Trop. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Gerbillus aquilus* Schlitter and Stezer, 1972**

DATA DEFICIENT in South Asia

Synonyms: None

Order: Rodentia

Family: Muridae

Common names: English: Swarthy Gerbil

Taxonomic remarks: It is included in subgenus *Gerbillus* Desmarest, 1804. Lay and Nadler (1975), and Lay (1983) treated *Gerbillus aquilus* Schlitter and Stezer, 1972 separate from *Gerbillus cheesmani* Thomas, 1919, but Corbet and Hill (1992) considered it as a subspecies of the latter

Habit: Nocturnal/crepuscular, terrestrial, gregarious

Habitat: Temperate forests and grasslands

Niche: Temperate grasslands and near water sources

Elevation: Not known

Distribution

Global: Afghanistan, Iran, Pakistan

South Asia: Pakistan

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: Unknown

Habitat status: No exact location known

Threats

No threats have been recorded for this taxon or its habitat

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: None

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **DATA DEFICIENT in South Asia**

Rationale: Roberts (1997) treated this taxon as subspecies of *Gerbillus cheesmani*. With it being upgraded to specific status, the exact location of its occurrence in the region is not known. Due to lack of information on its biology and distribution in the region, this species is considered Data Deficient

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

Shomen Mukherjee, S.S. Saha, A.K. Chakravarthy, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Gerbillus aquilus* Schlitter and Stezer, 1972 is known in Pakistan



Distribution of *Gerbillus aquilus* Schlitter and Stezer, 1972 in South Asia (Pakistan) from literature and field studies

<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
PAKISTAN				
Baluchistan				
Unknown localities	-	-	D.	Roberts (1997); Few localities between Anam-Bostan and Nushki. No exact location known and the localities mentioned need confirmation

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Gerbillus cheesmani* Thomas, 1919**

LEAST CONCERN in South Asia

Synonyms: None

Order: Rodentia

Family: Muridae

Common names: English: Cheesman's Gerbil

Taxonomic remarks: It is included in subgenus *Gerbillus* Desmarest, 1804. Ellerman (1961) gives nothing more than a passing reference to this species. Musser and Carleton (1993) do not record it from the region but treat it as a distinct species and mention that Lay and Nadler (1975), Lay (1983), and Harrison and Bates (1991) reviewed this species

Habit: Nocturnal, fossorial, gregarious

Habitat: Desert and semi-desert

Niche: Shifting sand dunes and desert mud flats

Elevation: > 300m

Distribution

Global: Iran, Iraq, Kuwait, Oman, Pakistan, Saudi Arabia, Yemen

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001sq km

Locations/subpopulations: 4/4, Fragmented

Habitat status: Widespread along the high altitude desert area of Baluchistan

Threats

Threats not known for this taxon or the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species. No major threats.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Hazar Ganji NP

Recommendations

Research: Survey

Management: Wild population management

Captive stocks: None

Comments

None

Sources

Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravathy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Gerbillus cheesmani* Thomas, 1919 is known in Pakistan



Distribution of *Gerbillus cheesmani* Thomas, 1919 in South Asia (Pakistan) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

PAKISTAN

Baluchistan

Nushki

29°33' 66°01' Semi D. Roberts (1997); Desert environs from
Noakundi to Dalbandin up to Khاران

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Gerbillus gleadowi* Murray, 1886**

NEAR THREATENED

Synonyms: None

Order: Rodentia

Family: Muridae

Common names: English: Little Hairy-footed Gerbil

Taxonomic remarks: None

Habit: Nocturnal, fossorial, terrestrial, gregarious

Habitat: Desert, semi-desert regions and agricultural lands

Niche: Interdunal grasslands, shifting sand dunes, uncultivated fields

Elevation: 750-800m

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan < 20,000]

Area of Occupancy: > 2,000 sq km [India > 2,000; Pakistan < 2,000]

Locations/subpopulations: 12/3, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% in the last 10 years and a future decline at the rate of 21-50% in the next 5-10 years due to irrigation and cultivation and loss of desert due to irrigation canals. In India, with the Indira Gandhi Canal coming up in the Thar desert, this taxon is being replaced by other much hardy species like *Rattus rattus* and *Nesokia indica*

Threats

Habitat loss and degradation due to small-holder farming, livestock grazing; presence of alien species and predators; pollution due to excessive use of pesticides and disturbance due to human activities and transport. The major threat for the habitat is the construction of the Indira Gandhi Canal. Initially the species might benefit due to grazing as the habitat structure improves for it (sand becomes loose) but later due to heavy grazing the plant productivity (seed production) will be affected and hence the population will decline. Grazing also breaks up the mounds which affect the burrowing behaviour. Probably more patchily distributed due to the canal

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in the population at the rate of < 10% in 5 years and a future decline at the rate of < 10% in the coming 10 years due to habitat loss because of livestock grazing and changes brought over by the construction of irrigation canals [S. Chakraborty, *pers. comm.*]

Data source

Field study, museum, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) NEAR THREATENED

Rationale: This species is widely distributed in its range but is closely associated with its habitat. Habitat destruction and change in the habitat at the rate of > 20% is predicted in the future due to construction of irrigation canals and livestock grazing.

National Status (IUCN Ver. 3.0)

India: Near Threatened

Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Pakistan: Vulnerable ↓ Near Threatened

B1ab(iii)+2ab(iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in Pakistan.

However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Rajasthan: Desert NP

Recommendations

Research: Survey, limiting factor, research

Management: Habitat management, monitoring

Conservation measures: *Needed*. Development and implementation of management plans and legislative actions. Provision of livelihood alternatives, community level Management, Protected Area management

Captive stocks: None

Comments

High grazing pressure can trample and disturb the vegetation in the areas where this taxon occurs making the sand dunes unstable. This taxon co-exists with *G. nanus* which requires stabilised sand dunes while *G. gleadowi* needs loose sand. If the Indira Gandhi irrigation Canal comes up in the desert this species will be driven out and other species like *Rattus rattus*, will take over and snakes, foxes and other predators will affect the population. Breaking up of top soil crust because of grazing, and irrigation because of the canal will bring in invasive species (I. Prakash, *pers. comm.*)

Sources

Agrawal, 2000; Kankane, 2004; Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Shomen Mukherjee

Recent Field Studies

Shomen Mukherjee, Sam sand dune, Jaisalmer, Rajasthan, November 1998- March 1999, M. Sc. Thesis

Distribution of *Gerbillus gleadowi* Murray, 1886 (Endemic to India and Pakistan) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Gujarat				
Banaskantha Palanpur	24°10'	72°26'	Semi D.	Agrawal (2000), throughout the district
Rajasthan				
Barmer and Jaisalmer Desert NP	-	-	D.	Kankane (2004)
Barmer Barmer	-	-	D.	Agrawal (2000), throughout the district
Bikaner Bikaner	28°15'	76°36'	Semi D.	Agrawal (2000), throughout the district
Churu Churu	28°30'	74°30'	Semi D.	Agrawal (2000), throughout the district
Jaisalmer Jaisalmer	-	-	D.	Agrawal (2000), throughout the district
Sam Sand dunes	-	-	D.	S. Mukherjee (pers. comm.). Threats include: breaking up of mounds due to local grazing. Eastern most range of this species
Jalore Jalore	25°10'	72°15'	Semi D.	Agrawal (2000), throughout the district
Jodhpur Jodhpur	26°17'	73°01'	Semi D.	Agrawal (2000), throughout the district
Jhunjhunu Jhunjhunu	-	-	Semi D.	Agrawal (2000), throughout the district
Sikar Sikar	27°33'	75°12'	Sem.D.	Agrawal (2000), throughout the district
PAKISTAN				
Punjab & Sind	-	-	D.	Roberts (1997), many locations in Thar. Multan and Khanewal in Punjab and Thar Parkar in Sind

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Gerbillus gleadowi* Murray, 1886 is known in India and Pakistan



***Gerbillus nanus* Blanford, 1875**

LEAST CONCERN in South Asia

Synonyms: *Dipodillus indus* Thomas, 1920

Order: Rodentia

Family: Muridae

Common names: English: Baluchistan Gerbil, Pygmy Gerbil, Wagner's Gerbil

Taxonomic remarks: Ellerman (1961) include *Dipodillus indus* Thomas, 1920 as subspecies of *Gerbillus dasyurus* (Wagner, 1842). Subsequently after Harrison (1972), the taxon *Dipodillus indus* Thomas, 1920 has been synonymised with *Gerbillus nanus* Blanford, 1875. Agrawal (2000) opines that the nominate species occurs in the region

Habit: Nocturnal, fossorial

Habitat: Desert, semi-desert regions; Stabilised sand dunes, interdunal grasslands (Mukherjee, 1999). Stony areas, clayey mud flats, patches of thorny scrub, edges of cultivated fields

Niche: Stabilised sand dunes

Elevation: 75-300m

Distribution

Global: Algeria, Egypt, India, Iran, Israel, Jordan, Pakistan, Saudi Arabia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Pakistan > 2,000]

Locations/subpopulations: Many/many

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 10% in the last 5 years and a future decline at the rate of 10% in the next 10 years due to alteration in habitat from stabilised to semi-stabilised sand dunes and livestock grazing

Threats

Habitat loss and degradation due to livestock grazing, mismanagement of non-farm lands, small-scale logging and harvesting of this species for local consumption. The major threat for the habitat is the construction of the Indira Gandhi Canal

Trade: This species is used for local consumption purposes

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimens, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Rajasthan: Desert NP

Recommendations

Research: Life history studies

Management: Habitat management

Conservation measures: Needed: Development and implementation of legislative actions at the national level.

Provision of livelihood alternatives, community level Management, site based actions in the protected areas, restoration, Management and Conservation measures of degraded ecosystems, protected area Management

Captive stocks: None

Comments

The Indira Gandhi irrigation Canal built across the desert will affect this taxon

Sources

Agrawal, 2000; Kankane, 2004; Roberts, 1997; Srinivasulu and Pradhan, 2003;

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Shomen Mukherjee

Recent Field Studies

Shomen Mukherjee, Sam sand dune, Jaisalmer, Rajasthan, November 1998-March 1999, M. Sc. Thesis. Habitat use of three species of rodents in Sam, Thar Desert

Locations from where *Gerbillus nanus* Blanford, 1875 is known in India and Pakistan



Distribution of *Gerbillus nanus* Blanford, 1875 in South Asia (India and Pakistan) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
INDIA									
Gujarat									
Banaskantha	24°10'	72°26'	Semi D.	Agrawal (2000), throughout the district	Turbat	25°59'	63°05'	D.	Roberts (1997)
Palanpur					Lasbela	25°45'	66°35'	D.	Roberts (1997)
					Lasbela				
Muli					Panjgur	26°40'	64°15'	D.	Roberts (1997)
Muli					Panjgur				
Rajasthan					North West Frontier				
Barmer and					Province				
Jaisalmer					Dera Ismail Khan				
Desert NP			D.	Kankane (2004)	Dera Ismail Khan	31°48'	70°54'	D.	Roberts (1997)
Barmer					Waziristan				
Barmer			D.	Agrawal (2000), throughout the district	Waziristan	33°00'	70°00'	D.	Roberts (1997)
Bikaner					Punjab				
Bikaner	28°15'	76°36'	Semi D.	Agrawal (2000), throughout the district	Bahawalpur				
Churu					Bahawalpur	29°59'	73°16'	Semi D.	Roberts (1997)
Churu	28°30'	74°30'	Semi D.	Agrawal (2000), throughout the district	Dera Ghazi Khan				
Jaisalmer					Dera Ghazi Khan	30°03'	70°38'	D.	Roberts (1997)
Jaisalmer			D.	Agrawal (2000), throughout the district	Lyallpur				
Sam Sand dunes			D.	S. Mukherjee (pers. comm.). Threats include breaking up of mounds due to local grazing. Eastern most range of this species	Lyallpur	31°25'	73°07'	Semi D.	Roberts (1997)
					Panjinad				
					Panjinad	29°21'	71°02'	Semi D.	Roberts (1997)
Jodhpur					Sahiwal				
Jodhpur	26°17'	73°01'	Semi D.	Agrawal (2000), throughout the district	Sahiwal	30°39'	73°06'	Semi D.	Roberts (1997)
Nagaur					Sind				
Nagaur			Semi D.	Agrawal (2000), throughout the district	Dadu				
					Dadu	26°44'	67°47'	D.	Roberts (1997)
PAKISTAN					Hub Valley				
Baluchistan					Hub Valley	25°00'	66°50'	D.	Roberts (1997)
Baluchistan			D.	Roberts (1997)	Larkana				
Chagai					Larkana	27°32'	68°12'	D.	Roberts (1997)
Nushki	29°33'	66°01'	D.	Roberts (1997)					
Mekran									
Mekran	26°00'	63°30'	D.	Roberts (1997)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Golunda ellioti Gray, 1837

Synonyms: *Mus hirustus* Elliot, 1839; *Mus myothrinx* Hodgson, 1845; *Golunda ellioti myothrinx* (Hodgson, 1845); *Mus newara* Kelaart, 1850 *Mus nuwara* Kelaart, 1850; *Golunda ellioti nuwara* (Kelaart, 1850)?; *Golunda coffaeus* Kelaart, 1850; *Pelomys watsoni* Blanford, 1876; *Golunda ellioti watsoni* (Blanford, 1876); *Golunda newara* Blanford, 1891?; *Golunda ellioti limitaris* Thomas, 1923; *Golunda ellioti bombax* Thomas, 1923; *Golunda ellioti coenosa* Thomas, 1923; *Golunda ellioti coraginus* Thomas, 1923; *Golunda ellioti gujerati* Thomas, 1923; *Golunda ellioti paupera* Thomas, 1923

Order: Rodentia

Family: Muridae

Common names: English: Indian Bush-Rat

Taxonomic remarks: Ellerman (1961) listed seven subspecies, namely – *Golunda ellioti ellioti* Gray, 1837, *Golunda ellioti gujerati* Thomas, 1923, *Golunda ellioti paupera* Thomas, 1923, *Golunda ellioti nuwara* (Kelaart, 1850), *Golunda ellioti myothrinx* (Hodgson, 1845), *Golunda ellioti coenosa* Thomas, 1923, and *Golunda ellioti watsoni* (Blanford, 1876). Ellerman (1961) also opined that "apart from *nuwara*, the races of this species are doubtful and others retained might just as well be placed in the synonymy of the typical form". Corbet and Hill (1992) listed three subspecies, namely *Golunda ellioti ellioti* Gray, 1837, *Golunda ellioti gujerati* Thomas, 1923, and *Golunda ellioti nuwara* (Kelaart, 1850), based on the review by Agrawal and Chakraborty (1982). However, Agrawal (2000) synonymised *Golunda ellioti gujerati* Thomas, 1923 with the nominate form *Golunda ellioti ellioti* Gray, 1837

Habit: Partially diurnal, fossorial also terrestrial, semi-arboreal, not particularly gregarious, herbivorous

Habitat: Found in varied habitat conditions from tropical dry deciduous, dry wood, shrub, tropical thorn forests and grassy clumps, may venture in to cultivated lands, bushes, orchards, scrublands, grasslands close to streams, tropical dry deciduous, except cold deserts. Also found near granite hills with sandy loam and silty soil. In Sri Lanka, this species is found in low country, dry zone and mountain wet zone, low country semi evergreen forests, wet patana grasslands

Niche: Rocky and hilly tracts, burrows, grassland close to streams, build nests on thick bush, shrubs

Elevation: 100-1,300m [In Sri Lanka: up to 231m]

Distribution

Global: India, Iran, Nepal, Pakistan, Sri Lanka

South Asia: India, Nepal, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal unknown; Pakistan > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal unknown; Pakistan > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: 85/many, Fragmented

Habitat status: Quantitative decrease in the habitat is seen but this species is adaptable to the changing environment and is doing well in the irrigated and cultivated areas

Threats

Habitat loss and degradation due to mining, stone quarrying, infrastructure development, invasion of alien plant species thereby directly impacting the habitat, pest control practices, natural disasters in the form of floods, storms, fire and improper management of the grasslands. This species is harvested for local consumption and is an important prey base

Trade: Harvested for local consumption

LEAST CONCERN in South Asia

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, museum specimens, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

Pakistan: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Eturnagaram WS; Gundla Brahmeshwaram WS; Kawal WS; Nagarjunsagar Srisailem TR; Nelapattu WS

Karnataka: Bannerghatta NP

Orissa: Chandaka-Dampara WS

West Bengal: Jaldapara WS

Sri Lanka *Uva Province:* Horton Plains NP

Recommendations

Research: Survey, epidemiology

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Chakraborty *et al.*, 2004; Pradhan and Kurup, 2001; Phillips, 1935, 1980; Roberts, 1997; Shreshta, 1997; Srinivasulu and Pradhan, 2003; Tiwari *et al.*, 2002 BIS on the species by: C. Srinivasulu and Bhargavi Srinivasulu, 2003; G. Maheswaran; K. Mukta Bai; K. Shenoy; P. Padmanabhan; W.L.D.P.T.S. de A. Goonatilake

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

Chakraborty, A.K., Hassan, Karnataka, India, 2003-2004,
Survey of Hassan area and Western Ghats of Karnataka
Gopinathan, M., Jaldapara Wildlife Sanctuary, 2002-2003,
Inventory studies

Srinivasulu, C & Bhargavi Srinivasulu, many localities
throughout Andhra Pradesh, 1996 onwards, Status of
mammals of Andhra Pradesh

Srinivasulu, C., Nagarjunasagar Srisailem Tiger Reserve, 1996
onwards, Biodiversity of Nagarjunasagar Srisailem Tiger
Reserve and Gundla Brahmeshwaram Metta Wildlife
Sanctuary in Nallamala Hills

Yashoda, L. and Mukta Bai, K., Mysore, 1990-1993, Rodent
occurrence in the hilly areas of Mysore city

Sanjay Molur, Distribution and status of rodents in Coorg
Western Ghats, 2003 ongoing

Locations from where *Golunda ellioti* Gray, 1837 is
known in India, Nepal, Pakistan and Sri Lanka



Distribution of *Golunda ellioti* Gray, 1837 in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andhra Pradesh									
Adilabad	19°30'	78°30'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahabunagar	16°30'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Bellampally	19°02'	79°30'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Amrabad	16°28'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagrjuanasagar Srisaillam TR
Chennur	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Pranahita WS	Medak	17°45'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Indhanpally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Kawal WS	Medak	17°50'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Kawal WS	Toopran	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Nirmal	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Naigonda	16°42'	78°56'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Uttoor	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Kawal WS	Devarakonda	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Chittoor	13°39'	79°25'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Tirupati	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nellore	14°08'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah	14°28'	78°49'	Trop. F.	Chakraborty <i>et al.</i> (2004)	Gudur	15°05'	79°35'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah	14°23'	80°09'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nellore	13°49'	79°57'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Doravarisatram
Koduru	18°36'	83°45'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nelapattu WS	-	-	-	-
Palakonda Hills	17°22'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Prakasam	15°34'	79°07'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad	-	-	-	-	Cumbum	15°23'	78°53'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram Metta WS
Hyderabad	17°22'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Diguvametta	15°44'	78°47'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram Metta WS
Karimnagar	18°30'	79°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Maddipenta	17°20'	77°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Karimnagar	18°43'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rangareddy	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Mahadevpur	18°06'	78°81'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Vikarabad	-	-	Trop. F.	North of Pasra in Etumagaram WS
Siddipet	17°33'	80°38'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Warnagal	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Etumagaram WS
Khammam	16°31'	80°37'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Etur	17°55'	79°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kothagudem	15°53'	78°35'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Medhararam	18°12'	80°10'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Krishna	15°35'	78°00'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Narsampet	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Etumagaram WS
Vijaywada	15°59'	78°29'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Pasra	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kurnool	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Tadwai	18°00'	79°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Atmakur	16°39'	80°08'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Warangal	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kurnool	16°46'	78°09'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Assam	26°20'	91°15'	Mon.	Agrawal (2000)
Nandyal	-	-	-	-	Kamrup	-	-	St. F.	-
Mahanandi	-	-	-	-	Kamrup	-	-	-	-
Mahabunagar	16°39'	80°08'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Achamper	16°46'	78°09'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Jadcherla	-	-	-	-					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Golunda ellioti* Gray, 1837 in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Chattisgarh Berar region	-	-	Trop. F.	Agrawal (2000)	Mysore Chamundi Hills Mysore	12°16' 12°18'	76°41' 76°30'	Trop. F. Trop. F.	K. Mukta Bai, BIS Agrawal (2000)
Gujarat Banaskantha Palanpur	24°10'	72°26'	Trop. F.	Agrawal (2000)	Kodagu Coorg	12°25'	75°45'	Trop. F.	Agrawal (2000); Pradhan & Kurup (2001); Sanjay Molur & Payal Molur (pers. obs.)
Kutch Kutch	22°35'	70°00'	Trop. F.	Agrawal (2000)	Dharwar Dharwar	15°30'	75°20'	Trop. F.	Agrawal (2000)
Rajkot Rajkot	25°44'	75°35'	Trop. F.	Agrawal (2000)	Madhya Pradesh Balaghat	21°48'	80°12'	Trop. F.	Agrawal (2000)
Surendranagar Surendranagar	22°45'	71°40'	Trop. F.	Agrawal (2000)	Gwalior Gwalior	26°12'	78°12'	Trop. F.	Agrawal (2000)
Haryana Ambala Ambala	30°22'	76°46'	Trop. F.	Agrawal (2000)	Hoshangabad Hoshangabad	22°45'	77°30'	Trop. F.	Agrawal (2000)
Himachal Pradesh Chamba Chamba	32°34'	76°08'	Trop. F.	Agrawal (2000)	Nimar Nimar	21°45'	76°35'	Trop. F.	Agrawal (2000)
Kangra Kangra	32°26'	76°16'	Mon. St. F.	Agrawal (2000)	Sagar Sagar	23°45'	78°45'	Trop. F.	Agrawal (2000)
Jammu and Kashmir Jammu	32°45'	74°50'	Mon. St. F.	Agrawal (2000)	Maharashtra Chandrapur Chanda	19°57'	79°18'	Trop. F.	Agrawal (2000)
Jharkhand Hazaribagh Hazaribagh	24°00'	80°15'	Trop. F.	Agrawal (2000)	Dhule Dhule	20°54'	74°47'	Trop. F.	Agrawal (2000)
Karnataka Bangalore Shivanahalli	-	-	Trop. F.	K. Shenoy, BIS; also in Bannerghatta NP	Nasik Nasik	20°13'	74°05'	Trop. F.	Agrawal (2000)
Hassan Sakleshpur	12°50'	75°50'	Trop. F.	A.K. Chakravarthy (pers. comm.)	Pune Poona	18°32'	73°52'	Trop. F.	Agrawal (2000)
					Ratnagiri Konkan	18°05'	73°25'	Trop. F.	Agrawal (2000)

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Distribution of *Golunda ellioti* Gray, 1837 in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Satara	17°43'	74°05'	Trop. F.	Agrawal (2000)	West Bengal Duars	-	-	Trop. F.	Agrawal (2000). Many localities
Satara					Jalpaiguri Bengal Duars	25°58' to 27°45'	89°08' to 89°55'	Trop. F.	G. Maheswaran, B.S. In Jaldapara WS
Orissa Khurda and Cuttack Ambilo	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), near about 20°22' N and 85°46' E	NEPAL ?locality	-	-	Mon. St. F.	Shreshtha (1997), affects grasslands, sandy scrub
Dampara	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), near about 20°22' N and 85°46' E	PAKISTAN Baluchistan	-	-	Trop. F.	Roberts (1997); throughout the province) Semi D.
Jhalara	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), near about 20°22' N and 85°46' E	North West Frontier Province Kohat Kohat	33°42'	72°00'	Trop. F.	Roberts (1997)
Puri Puri	19°48'	85°51'	Trop. F.	Agrawal (2000)	Punjab Lahore Changa Manga Forest	31°05'	73°58'	Trop. F.	Roberts (1997)
Rajasthan Alwar Sanskra NP	-	-	Trop. F.	S. Mukherjee (pers. comm)	Rawalpindi Margalla Hills Rawalpindi	33°43' 33°36'	72°52' 73°04'	Trop. F.	Roberts (1997) Roberts (1997)
Jalore Jalore	25°10'	72°15'	Trop. F.	Agrawal (2000)	Sind Khairpur Gambat	-	-	Trop. F.	Roberts (1997)
Jodhpur Jodhpur	26°17'	73°01'	Semi D.	Agrawal (2000)	Larkana Larkana	27°33'	98°13'	Trop. F.	Roberts (1997)
Sirohi	25°07'	73°10'	Trop. F.	Agrawal (2000)	Lasbela Lasbela	25°45'	66°35'	Trop. F.	Roberts (1997); in the Hub river valley
Bisalpur Mt. Abu	24°36'	72°42'	Trop. F.	Agrawal (2000)	Malir Malir	24°59'	67°13'	Trop. F.	Roberts (1997)
Tamil Nadu Coimbatore Moongilpallam	-	-	Trop. F.	In Anaikatty, C. Srinivasulu, M. Jordan, M.S. Pradhan, P.O. Nameer, S. Chakraborty (pers. comm)					
Madurai Madurai	9°56'	78°07'	Trop. F.	Agrawal (2000)					
Salem Salem	12°00'	78°00'	Trop. F.	Agrawal (2000)					
Uttaranchal ?Almora Kumaon	29°50'	79°30'	Temp. F.	Agrawal (2000)					

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Distribution of *Golunda ellioti* Gray, 1837 in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
Thatta	24°52'	67°13'	Trop. F.	Roberts (1997)
Landhi	27°40'	68°22'	Trop. F.	Roberts (1997)
Naundero				
SRI LANKA				
Central Province				
Kegalle	6°59'	80°26'	Trop. F.	W.L.D.P.T.S.de A. Goonatilake. (pers. comm.). Habitat: home gardens, coffee plantations
Kalugala				
Southern Province				
Nuwara Eliya	6°52'	80°49'	Trop. F.	Phillips (1980)
Ambewela	6°48'	80°39'	Trop. F.	Phillips (1935)
Bogawantalawa	6°49'	80°48'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake,BIS. and W.L.D.P.T.S. de A.
Horton Plains NP				
Nuwara Eliya	6°58'	80°56'	Trop. F.	Goonatilake (pers. obs. in 2000)
Ohiya	6°49'	80°50'	Trop. F.	Phillips (1935) W.L.D.P.T.S.de A. Goonatilake, BIS. Phillips (1935)W.L.D.P.T.S. de A. Goonatilake, BIS.
North Central Province				
Polonnaruwa	8°22'	81°02'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake,BIS.
Kantalai				
Southern Province				
Galle	6°10'	80°11'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake,BIS. Tea and coffee plantations
Baddegama	6°10'	80°12'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake,BIS. Tea and coffee plantations
Ettakando				
Hambantota	6°17'	81°24'	Trop. F.	Phillips (1980) W.L.D.P.T.S. de A. Goonatilake, BIS.
Palatupana				
Western Province				
Colombo	6°50'	79°53'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake,BIS. Marshy habitat. Threats include land reclamation
Attidiya	6°51'	79°51'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake,BIS. Threats include land reclamation
Deniwala				

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***Hadromys humei* (Thomas, 1886)**

VULNERABLE in South Asia

Synonyms: *Mus humei* Thomas, 1886

Order: Rodentia

Family: Muridae

Common names: English: Hume's Rat

Taxonomic remarks: None

Habit: Nocturnal, fossorial

Habitat: Found in tropical evergreen, moist deciduous and evergreen forests. Also found in secondary forests

Niche: Forested tracts

Elevation: 1,300m

Distribution

Global: India, China

South Asia: India

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 3/3, Fragmented

Habitat status: Declining in area and quality

Threats

Habitat loss, fragmentation, encroachments, hunting, fire

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: None

Data source

Museum specimens, literature; subjective; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED** ↓

VULNERABLE B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat quality in India. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Monitoring

Conservation measures: *Needed*. Research towards studying threats to this taxon, monitoring the population number, the status of the habitat where this taxon occurs, the biology and ecology of this taxon and its range

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Hadromys humei* (Thomas, 1886) is known in India



Distribution of *Hadromys humei* (Thomas, 1886) in South Asia (India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Assam				
Kamrup	-	-	Temp. F.	Agrawal (2000)
Angarakhata				
Manipur				
Bishnupur	24°38'	93°46'	Temp. F.	Agrawal (2000); Elevation: c. 916-1,219m
Bishnupur	-	-	Temp. F.	Agrawal (2000)
Senapati				

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***Hyperacrius fertilis* (True, 1894)**

VULNERABLE

Synonyms: *Arvicola fertilis* True, 1894; *Microtus* (*Hyperacrius*) *aitchisoni* Miller, 1897; *Microtus* (*Hyperacrius*) *brachelix* Miller, 1899

Order: Rodentia

Family: Muridae

Common names: English: Burrowing Vole

Taxonomic remarks: Ellerman (1961) listed two subspecies, namely *Hyperacrius fertilis fertilis* (True, 1894) and *Hyperacrius fertilis brachelix* (Miller, 1899). Regarding *Hyperacrius aitchisoni* Miller (1897), Ellerman (1961) remarked that "it is most likely a race of *fertilis*, but might perhaps be a race of *wynne*". Corbet and Hill (1992) however synonymised *Hyperacrius aitchisoni* (Miller, 1897) with *Hyperacrius fertilis* (True, 1894). Agrawal (2000) synonymised *Microtus* (*Hyperacrius*) *brachelix* (Miller, 1899) with *Hyperacrius fertilis* (True, 1894) and does not mention anything about *Hyperacrius aitchisoni* (Miller, 1897). See Phillips (1969) for further details

Habit: Diurnal, terrestrial and semi-fossorial, herbivorous, gregarious

Habitat: Temperate forests. Inhabits sub-alpine scrub forests and meadows above tree line. In Pakistan, this species affects moist temperate forest, sub-alpine scrub zone

Niche: Sub-alpine scrub and meadows

Elevation: 2,450-3,600m

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: < 2,000 sq km [India < 500; Pakistan < 500]

Locations/subpopulations: 15/2, Fragmented

Habitat status: Declining in quality of habitat

Threats

Grazing, human settlements

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimens, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE B2ab(iii)**

Rationale: This species is widely distributed throughout its range and is well adapted to changing environments

National Status (IUCN Ver. 3.0)

India: Endangered ↓ Vulnerable B2ab(iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Pakistan: Endangered ↓ Vulnerable B2ab(iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey

Management: Habitat management

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Phillips, 1969; Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Hyperacrius fertilis* (True, 1894) is known in India and Pakistan



Distribution of *Hyperacrius fertilis* (True, 1894) (Endemic to India, Pakistan) from literature and field studies

Distribution in
South Asia

INDIA

Jammu and Kashmir

Pir Panjal Range 33°25' 75°35' Mon. Agrawal (2000); Phillips (1969); Roberts (1997)
St. F.

Gilgit

Gilgit 35°45' 74°30' Mon. Agrawal (2000); Phillips (1969); Roberts (1997)
St. F.

Ladakh

Baltistan 35°20' 75°12' Mon. Roberts (1997); in Deosai Plateau
St. F.

Gugga Nullah

- - Mon. Agrawal (2000)

Jojilla Pass

- - Mon. Agrawal (2000)

Leddar Valley

- - Mon. Agrawal (2000)

South Kashmir

Pahalgam 34°02' 75°20' Mon. Agrawal (2000); Phillips (1969)
St. F.

Udhampur

Kishtwar 32°56' 75°08' Mon. Agrawal (2000)
St. F.

PAKISTAN

North West

Frontier

Province

Hazara

Bogamarg - Temp. F. Roberts (1997)

Burawai

34°56' 73°52' Temp. F. Roberts (1997)

Jora Valley

34°55' 73°52' Temp. F. Roberts (1997)

Khagan Valley

34°25' 73°17' Temp. F. Roberts (1997)

Shogran

34°03' 73°28' Temp. F. Roberts (1997)

Swat Kohistan

Ushu 35°32' 72°39' Temp. F. Roberts (1997)

Utrot

35°29' 72°27' Temp. F. Roberts (1997)

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Hyperacrius wynnei (Blanford, 1881)

LEAST CONCERN

Synonyms: *Arvicola wynnei* Blanford, 1881

Order: Rodentia

Family: Muridae

Common names: English: Murree Vole; Urdu: *Andha Choocha*

Taxonomic remarks: Phillips (1969) restricts its range to N. Pakistan. However, Corbet and Hill (1992), and Agrawal (2000) opine that it also occurs in India based on Ellerman's (1961) report of its presence from Sardalla in Kashmir

Habit: Nocturnal and crepuscular, fossorial, herbivorous, gregarious, pest on crops, orchards

Habitat: Temperate forests, silver fir and blue pine (Roberts, 1997)

Niche: Grassy slopes

Elevation: 1,800-3,000m

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India < 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001sq km [India < 500; Pakistan > 2,000]

Locations/subpopulations: 7/3, Contiguous

Habitat status: Quantitative and qualitative decrease in habitat due to expanding agriculture and plantations

Threats

Habitat loss and degradation due to agro-industries, expansion of farming, apple orchards, potato crops. Increase in human settlements and expansion of agricultural lands (Roberts, 1997)

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown. Abundant in the forests of Murree Hills and westwards through the lower forested regions of Hazara district (Roberts, 1997)

Mature individuals: Unknown

Population trend: Unknown.

Data source

Indirect information, literature; subjective; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India Endangered ↓ **Vulnerable B2ab(iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Pakistan: **Least Concern**

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: None

Management: None

Captive stocks: None

Comments

In Pakistan, man-animal conflict due to cultivation and orchards in high altitudes

Sources

Agrawal, 2000; Phillips, 1969; Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

Shomen Mukherjee, A.K. Chakravarthy, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Hyperacrius wynnei* (Blanford, 1881) is known in India and Pakistan



Distribution of *Hyperacrius wynniei* (Blanford, 1881) (Endemic to India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jammu & Kashmir				
Sardalla	-	-	Mon. St. F.	Agrawal (2000), Roberts (1997)
PAKISTAN				
North West Frontier Province				
Hazara	34°02'	73°24'	Mon. St. F.	Roberts (1997), earlier known as Khanspur
Ayubia	34°047'	73°32'	Mon. St. F.	Roberts (1997)
Kaghan	34°04'	73°26'	Mon. St. F.	Roberts (1997)
Mukshpuri	34°043'	73°59'	Mon. St. F.	Roberts (1997)
Shahran	34°037'	73°28'	Mon. St. F.	Roberts (1997)
Shogran				
Punjab				
Rawalpindi	-	-	Mon. St. F.	Roberts (1997)
Mosote				
Murree	33°54'	73°22'	Mon. St. F.	Roberts (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Leopoldamys edwardsi (Thomas, 1882)

Synonyms: *Mus edwardsi* Thomas, 1882; *Epimys listeri* Thomas, 1916; *Epimys listeri garonum* Thomas, 1921

Order: Rodentia

Family: Muridae

Common names: English: Edward's Rat

Taxonomic remarks: Ellerman (1961) concluded that there is no significant variation in *listeri* and *edwardsi* and hence synonymised with the latter. Corbet and Hill (1992) recognise *Rattus listeri garonum* Thomas, 1921, while Agrawal (2000) synonymised it with type species. Musser and Carleton (1993) consider the species is in need of taxonomic revision and that samples from Indochina may represent a different species from those from the Malay Peninsula and Sumatra. May also occur in Bhutan

Habit: Semi-fossorial and semi-arboreal. Forest dwelling, mostly terrestrial also climbing on trees

Habitat: Tropical moist forest, tropical evergreen, tropical semi-evergreen, tropical montane and tropical moist deciduous forests

Niche: Found under leaf litter and in undergrowth in forested tracts in moist deciduous forests

Elevation: > 150m

Distribution

Global: China, India, Laos, Malaysia (Malay peninsula), Myanmar, Sumatra (West), Thailand, Vietnam

South Asia: India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: 501-2,000 sq km

Locations/subpopulations: 5/5, Fragmented

Habitat status: Quantitative and qualitative decrease of the habitat at the rate of < 20% in last 20 years and a similar trend in the future 20 years is predicted due to loss of trees due to small-scale logging and small-scale extraction of forest produce including trees

Threats

Habitat loss and degradation due to small-scale logging, non-farm land management and harvest for local consumption

Trade: Harvested for local consumption purposes. In Lishu Village trappers barter this species for other animals

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease of the population at the rate of < 10% in the coming 10 years is predicted due to harvest of local consumption and loss of habitat

Data source

Informal sightings, museum records, literature; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE** ↓ **NEAR THREATENED** in South Asia B2ab(ii,iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

NEAR THREATENED in South Asia

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal, A.K. Chakravarthy, Shomen Mukherjee, A.R. Binu Priya, S.S. Saha

Reviewers: S.S. Saha

Recent Field Studies

None

Locations from where *Leopoldamys edwardsi* (Thomas, 1882) is known in India



Distribution of *Leopoldamys edwardsi* (Thomas, 1882) in South Asia (India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang	27°23'	96°15'	Mon.	S.S. Saha (pers. comm.), in Namdapha TR
Gandhigram	to 27°39'	to 96°58'	St. F.	
Lohit				
Mishmi Hills environs	28°40'	96°10'	Mon. St. F.	Agrawal (2000)
Meghalaya				
West Garo Hills				
Tura	25°31'	90°15'	Mon. St. F.	Agrawal (2000), in Garo Hills environs
Nagaland				
Tuensang				
Mokokchung	26°15'	94°15'	Mon. St. F.	Agrawal (2000), in Naga Hills
West Bengal				
Darjiling				
Darjiling	26°45'	88°15'	Mon. St. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Leopoldamys sabanus* (Thomas, 1887)**

DATA DEFICIENT in South Asia

Synonyms: *Mus sabanus* Thomas, 1887; *Rattus sabanus garonum* (Thomas, 1921)

Order: Rodentia

Family: Muridae

Common names: English: Noisy Rat

Taxonomic remarks: Ellerman (1961) listed two subspecies, namely *Rattus sabanus vociferans* (Miller, 1900) and *Rattus sabanus garonum* (Thomas, 1921) [originally as *Epimys listeri garonum* Thomas, 1921]. *Leopoldamys sabanus* (Thomas, 1887) reported from Meghalaya is a misidentification of

Leopoldamys edwardsi (Thomas, 1882), as such it does not occur in India (Musser, 1981; Agrawal, 2000). The latter subspecies listed by Ellerman (1961) is presently synonymised with *Leopoldamys edwardsi* (Thomas, 1882)

Habit: Nocturnal, subterranean

Habitat: Tropical, subtropical, wet montane temperate forests

Niche: Subtropical, temperate evergreen forests

Elevation: ~300m

Distribution

Global: Bangladesh, Borneo, Cambodia, India, Java, Laos, Malaysia, Sumatra, Sunda Shelf (Islands on), Thailand, Vietnam

South Asia: Bangladesh, India

Extent of Occurrence: < 1,000 sq km [Bangladesh unknown; India < 1,000]

Area of Occupancy: < 10 sq km [Bangladesh unknown; India < 10]

Locations/subpopulations: 1/1.

Habitat status: Qualitative and quantitative decrease in habitat at the rate of < 20% in the last 20 years and a future decline of < 20% in the coming 10 years is predicted due to change in land use patterns

Threats

Habitat loss and degradation due to shifting agriculture and small-scale logging

Trade: Harvested for local consumption purposes

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: This species is indicated as occurring in South Asia but the localities remain unknown in Bangladesh (Srinivasulu & Pradhan, 2003). The present record of its occurrence in India from Gandhigram, Namdapha National Park, Arunachal Pradesh needs to be considered with caution pending taxonomic verification (S.S. Saha, pers.comm.). S.U. Sarker (pers. comm.) opines that it may not occur in Bangladesh

Data source

Informal sightings, literature; subjective; suspected

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **DATA DEFICIENT in South Asia**

Rationale: This species has been accorded this status due to taxonomic uncertainty

National Status (IUCN Ver. 3.0)

Bangladesh: Data Deficient

India: Data Deficient

Wildlife Legislation:

Bangladesh: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey

Management: Monitoring

Conservation measures: Needed: Research towards monitoring the trends, threats and habitat status, population range and numbers

Captive stocks: None

Comments

Very little known about range of occurrence. The present material was accidentally procured from a tribal trapper. Range may extend into protected area (Namdapha NP). This species may not occur in Bangladesh (S.U. Sarker, pers. comm.). The Bangladesh range has been included following Musser and Carleton (1993), and Nowak (1999) by Srinivasulu and Pradhan (2003). Exact locality records need to be confirmed. The Indian record of this species from Namdapha National Park is the only known locality in South Asia. However, if the specimen collected pertains to that of *Leopoldamys sabanus garonum* (as indicated by S.S. Saha), it may be belonging to the widely distributed *Leopoldamys edwardsi* as the taxon showing affinity to that of *garonum* has been synonymised with *Leopoldamys edwardsi* (C. Srinivasulu, pers. comm.)]

Sources

Musser and Carleton, 1993; Nowak, 1999; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: S.S. Saha; C. Srinivasulu

Recent Field Studies

None

Distribution of *Leopoldamys sabanus* (Thomas, 1887) in South Asia (Bangladesh, India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

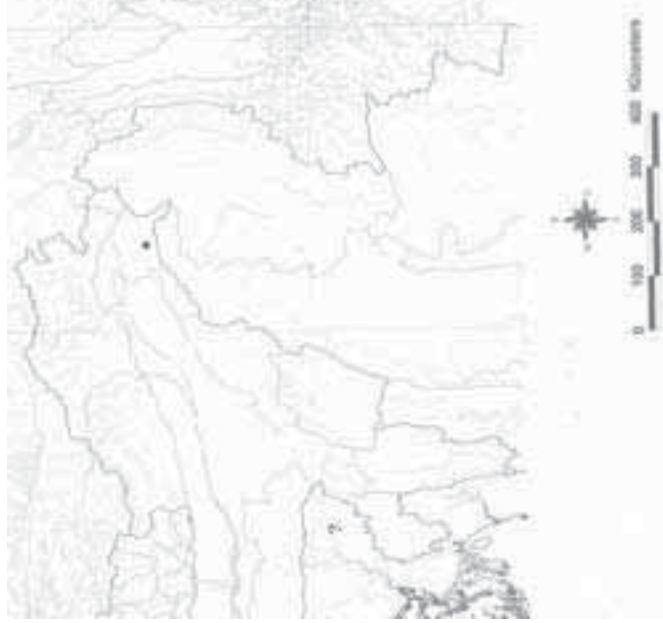
INDIA

Arunachal Pradesh

Changlang 27°23' 96°15' Trop. F. S.S. Saha (pers. comm.); in evergreen
Gandhigram to to forest

27°39' 96°58'

Location from where *Leopoldamys sabanus* (Thomas, 1887) is known in Bangladesh and India



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Meriones crassus* Sundevall, 1842**

NEAR THREATENED in South Asia

Synonyms: *Gerbillus swinhoei* Scully, 1881; *Meriones crassus swinhoei* (Scully, 1881)

Order: Rodentia

Family: Muridae

Common names: English: Sundevall's Jird

Taxonomic remarks: Ellerman (1961) included this species in subgenus *Pallasiomys* Heptner, 1933, and listed one subspecies *Meriones crassus swinhoei* (Scully, 1881) from the region. Corbet and Hill (1992) synonymised *Gerbillus swinhoei* Scully, 1881 with *Meriones crassus* Sundevall, 1842 following observations made by Koffler (1972)

Habit: Nocturnal, colonial, herbivorous

Habitat: Hot desert and semi-desert areas

Niche: Arid areas with sparse vegetation

Elevation: Unknown

Captive stocks: None

Comments

Eastern most part of its range

Sources

Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Distribution

Global: Afghanistan, Algeria, Chad, Egypt, Iran, Iraq, Israel, Jordan, Libya, Morocco, Niger, Pakistan, Palestine, Saudi Arabia, Syria, Tajikistan, Tunisia, Turkey

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,000 sq km

Locations/subpopulations: 11/many, Fragmented

Habitat status: Quantitative and qualitative decline in the habitat at the rate of < 20% in the past 10 years and a future decline of < 20% in the next 10 years is predicted due to war

Threats

Natural disasters, drought, human disturbance in the form of civil unrest, war

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in population numbers at the rate of 10% or more in the last 10 years and a future decline at the rate of 10% or more in the next 10 years is predicted

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **NEAR THREATENED** in South Asia

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Hazar Ganji NP

Recommendations

Research: Survey, life history

Management: Monitoring

Locations from where *Meriones crassus* Sundevall, 1842 is known in Pakistan



Distribution of *Meriones crassus* Sundevall, 1842 in South Asia (Pakistan) from literature and field studies

Distribution in
South Asia

PAKISTAN
Baluchistan

	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Chagai	28°49'	62°46'	D.	Roberts (1997)
Noakundi	29°33'	66°01'	D.	Roberts (1997)
Nushki				
Dalbandin	28°53'	64°25'	D.	Roberts (1997)
Daibandin				
Kharan	-	-	D.	Roberts (1997)
Kharan				
Khuzdar	27°53'	66°36'	D.	Roberts (1997)
Khuzdar				
Loralai	30°22'	68°26'	D.	Roberts (1997)
Loralai				
Mekran	26°00'	63°30'	D.	Roberts (1997)
Mekran				
Panjgur	26°40'	64°15'	D.	Roberts (1997)
Panjgur				
Parom	26°38'	64°21'	D.	Roberts (1997)
Parom				
Quetta	33°00'	66°53'	D.	Roberts (1997)
Chiltan Hills	27°30'	66°11'	D.	Roberts (1997)
Hazar Ganji NP				
North West Frontier Province				
Waziristan	32°18'	69°34'	D.	Roberts (1997)
Wana				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Meriones hurrianae (Jerdon, 1867)

NEAR THREATENED in South Asia

Synonyms: *Gerbillus hurrianae* Jerdon, 1867; *Cheliones hurrianae collinus* (Thomas, 1919)

Order: Rodentia

Family: Muridae

Common names: English: Indian Desert Gerbil

Taxonomic remarks: Ellerman (1961) included this species in subgenus *Cheliones* Thomas, 1919. Roberts (1997) reviewed the Pakistan population

Habit: Diurnal, fossorial, social, colonial (5-20 individuals)

Habitat: Big shrubs under which it burrows (Mukherjee, 1999). Alluvial plains, uncultivated clay flats. Sandy plains, interdunal region, gravelly depressions with grasses and other vegetation, mud thorn clad sand dunes (S. Chakraborty, BIS). Shallow interconnected burrows under thorny bushes. Pure acacia forest and hedges; hills of sandy loam soil with sparse grass and herbs

Niche: Edges of cultivated fields, c' 350 m (S. Chakraborty, BIS) superficial to deep burrows in plains, prefers hammocky landscapes on sandy plains with higher density of bushes

Elevation: 75-300m

Distribution

Global: India, Iran, Pakistan

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001sq km [India > 2,000; Pakistan > 2,000]

Locations/subpopulations: 49/many, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of 21% to 50% in 20 years due to the Indira Gandhi Canal and change in crop patterns. Loss of bushes and trees in Sam area, Jailsalmer due to fuel wood collection, in areas with prolonged drought it is replaced by *Gerbillus* sp., while in areas brought under cultivation it is suffering competition from *Millardia meltada*, *Bandicota bengalensis*, and other rodents

Threats

Habitat loss or degradation due to expansion of agriculture, small-scale logging, invasion of alien plant species directly impacting the habitat, collection of fuel wood, pest control practices, natural disasters like drought, floods, drowning and other edaphic changes, competitors in the form of other species

Trade: Hunted for local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in population at the rate of 20% or more in the last 30 years and a similar trend in the future is predicted

Data source

Field studies, museum records, literature; subjective; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) NEAR THREATENED in

South Asia

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not

enough to be categorised as Vulnerable.

National Status (IUCN Ver. 3.0)

India: Near Threatened

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Pakistan: Near Threatened

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Wildlife Legislation None

CITES: Not listed

Presence in Protected Areas

India

Rajasthan: Desert NP

Recommendations

Research: Life history

Management: None

Conservation measures: *Needed:* Site based action plans, protected area management, Conservation measures and maintenance of Protected Areas

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Kankane, 2004; Mukherjee, 1999; Roberts, 1997; Srinivasulu and Pradhan, 2003 BIS on the species by: J. Joshua; S. Chakraborty

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Shomen Mukherjee

Recent Field Studies

None

Distribution of *Meriones hurrianae* (Jerdon, 1867) in South Asia (India and Pakistan) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Gujarat									
Ahmedabad	23°02'	72°37'	Semi D.	S. Chakraborty, BIS	Bikaner	28°15'	76°36'	Semi D.	Agrawal (2000), throughout the district; found in Bikaner Agriculture University Campus (S. Chakraborty, BIS)
Ahmedabad					Bikaner				
Banaskantha									
Deoder	-	-	Semi D.	J. Joshua, BIS	Churu	28°30'	74°30'	Semi D.	Agrawal (2000), throughout the district
Palanpur	24°10'	72°26'	Semi D.	Agrawal (2000), J. Joshua, BIS	Churu			D.	S. Chakraborty, BIS
Vav	24°21'	71°40'	Semi D.	Agrawal (2000), J. Joshua, BIS	Dewani	-	-	D.	S. Chakraborty, BIS
Jamnagar					Talchappar				
Jamnagar	-	-	Semi D.	J. Joshua, BIS	Ganganagar	29°55'	73°53'	D.	Agrawal (2000)
Kachchh					Ganganagar	29°19'	73°54'	D.	S. Chakraborty, BIS
Adbasa	-	-	Semi D.	J. Joshua, BIS	Suratgarh				
Anjar	23°08'	70°01'	Semi D.	J. Joshua, BIS	Hanumangarh				
Banni	23°42'	69°34'	Semi D.	J. Joshua, BIS	Kohla forest	-	-	D.	S. Chakraborty, BIS
Bhachau	23°17'	70°21'	Semi D.	J. Joshua, BIS	Lakhera	-	-	D.	S. Chakraborty, BIS
Bhuj	23°16'	69°40'	Semi D.	Agrawal (2000), J. Joshua, BIS					
Lakpath	-	-	Semi D.	J. Joshua, BIS	Jaisalmer				
Mandvi	22°50'	69°22'	Semi D.	J. Joshua, BIS	Jaisalmer				
Mundra	22°51'	69°44'	Semi D.	J. Joshua, BIS	dunes	-	-	D.	Agrawal (2000), throughout the district
Nakhatrana	-	-	Semi D.	J. Joshua, BIS					
Pachchim	-	-	Semi D.	J. Joshua, BIS					
Rapar	23°34'	70°38'	Semi D.	J. Joshua, BIS					
Mehsana									
Mehsana	-	-	Semi D.	J. Joshua, BIS	Jalore	25°10'	72°15'	D.	Agrawal (2000), throughout the district
Surendranagar					Jalore				
Surendranagar	22°45'	71°40'	Semi D.	Agrawal (2000), S. Chakraborty, BIS	Jodhpur	26°17'	73°01'	Semi D.	Agrawal (2000), throughout the district; S. Chakraborty, BIS
Haryana					Jodhpur				
Hissar	29°10'	75°45'	Semi D.	Agrawal (2000)	Jhunjhunu	-	-	D.	Agrawal (2000), throughout the district
Hissar					Jhunjhunu	-	-	D.	S. Chakraborty, BIS
Rajasthan					Indrapura				
Barmer and					Nagaur				
Jaisalmer	-	-	D.	Kankane (2004)	Nagaur				
Desert NP					Nagaur				
Barmer					Pali	25°46'	73°20'	D.	Agrawal (2000)
Barmer	-	-	D.	Agrawal (2000), throughout the district	Pali				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Meriones hurrianae* (Jerdon, 1867) in South Asia (India and Pakistan) from literature and field studies.....Contd.

Distribution in
South Asia

	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Sikar	27°33'	75°12'	D.	S. Chakraborty, BIS
Sikar				
Sirohi	-	-	D.	Agrawal (2000)
Sirohi				
PAKISTAN				
Baluchistan				
Mekran	26°00'	63°30'	D.	Roberts (1997)
Mekran				
North West Frontier Province				
Mardan	-	-	D.	Roberts (1997)
Mardan				
Peshawar				
Peshawar	30°17'	68°03'	D.	Roberts (1997)
Punjab				
Indus Plains	-	-	D.	Roberts (1997), many localities in the Indus plains
Bahawalpur				
Cholistan	28°15'	70°45'	Semi D.	Roberts (1997)
Sind				
Indus Plains	-	-	D.	Roberts (1997), many localities in the Indus plains
Karachi				
Karachi	24°52'	67°03'	D.	Roberts (1997)

Locations from where *Meriones hurrianae* (Jerdon, 1867) is known in India and Pakistan



***Meriones libycus* Lichtenstein, 1823**

Synonyms: *Gerbillus erythrourus* Gray, 1842; *Meriones libycus erythrourus* (Gray, 1842)

Order: Rodentia

Family: Muridae

Common names: English: Lybian Jird

Taxonomic remarks: Ellerman (1961) included this species in subgenus *Pallasiomys* Heptner, 1933, and listed one subspecies *Meriones libycus erythrourus* (Gray, 1842) - the Afghan Jird, from this region. Corbet and Hill (1992) synonymise *Gerbillus erythrourus* Gray, 1842 with *Meriones libycus* Lichtenstein, 1823. Musser and Carleton (1993) provide a detailed remark on different works on this species

Habit: Diurnal, fossorial, gregarious

Habitat: Valley and low-lying areas in hot deserts and semi-desert regions

Niche: Edges of irrigated croplands

Elevation: Up to 1,680m

Distribution

Global: Afghanistan, Algeria, Egypt, Iran, Iraq, Jordan, Libya, Mauritania, Morocco, Pakistan, Palestine, Saudi Arabia, Syria, Tajikistan, Turkmenistan

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 7/5, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat due to loss of feeding grounds and droughts

Threats

Habitat loss, drought

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; suspected; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species. No major threats.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

LEAST CONCERN in South Asia

Sources

Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Meriones libycus* Lichtenstein, 1823 is known in Pakistan



Distribution of *Meriones jybicus* Lichtenstein, 1823 in South Asia (Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
PAKISTAN				
Baluchistan				
Chaman	30°55'	66°26'	D.	Roberts (1997)
Chaman				
Chagai	29°33'	66°01'	D.	Roberts (1997)
Nushki				
Dalbandin	28°53'	64°25'	D.	Roberts (1997)
Dalbandin				
Kelat	25°13'	64°37'	D.	Roberts (1997)
Ormara				
Kharan	-	-	D.	Roberts (1997)
Kharan				
Mekran	26°00'	63°30'	D.	Roberts (1997)
Mekran				
Quetta	30°12'	67°00'	D.	Roberts (1997)
Quetta				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Meriones persicus* (Blanford, 1875)**

Synonyms: *Gerbillus persicus* Blanford, 1875

Order: Rodentia

Family: Muridae

Common names: English: Persian Jird

Taxonomic remarks: Ellerman (1961) included this species in subgenus *Parameriones* Heptner, 1937, and listed two subspecies *Meriones persicus persicus* Blanford, 1875 and *Meriones persicus baptistae* Thomas, 1920. Roberts (1997) reviewed the Pakistan population

Habit: Nocturnal, terrestrial, gregarious, omnivorous

Habitat: Found in mountainous region, favouring dry stone embankment in highlands

Niche: Dry stone embankments of upland cultivation

Elevation: 1,850-3,250m

Distribution

Global: Afghanistan, Iran, Iraq, Pakistan, Turkey, Turkmenistan

South Asia: Pakistan

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: 501-2,000 sq km

Locations/subpopulations: 7/2, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat due to loss of feeding grounds and habitat fragmentation

Threats

Natural disasters in the form of drought

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in population at the rate of < 10% in the last 10 years and a future decline of 10% or more in the next 10 years is predicted due to loss of feeding grounds

Data source

Informal sightings, literature; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE ↓ NEAR THREATENED in South Asia B2ab(ii,iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Baluchistan: Hazar Ganji NP

Recommendations

Research: Survey, life history studies, limiting factor research

Management: Habitat management, monitoring

Captive stocks: None

NEAR THREATENED in South Asia

Comments

None

Sources

Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Meriones persicus* (Blanford, 1875) is known in Pakistan



Distribution of *Meriones persicus* (Blanford, 1875) in South Asia (Pakistan) from literature and field studies

Distribution in
South Asia

PAKISTAN

Baluchistan

	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Kelat	25°13'	64°37'	D.	Roberts (1997)
Ormara				
Mekran	26°00'	63°30'	D.	Roberts (1997)
Mekran				
Quetta	33°00'	66°53'	D.	Roberts (1997)
Chiltan Hills				
Gishk	29°15'	66°57'	D.	Roberts (1997)
Hazar Ganji NP	27°30'	66°11'	D.	Roberts (1997)
Kaliphat	-	-	D.	Roberts (1997)
Zarghun	30°13'	67°18'	D.	Roberts (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Micromys minutus* (Pallas, 1771)**

Synonyms: *Mus erythrotis* Blyth, 1855; *Mus minutus* Pallas, 1771; *Mus pygmaeus* Milne-Edwards, 1874

Order: Rodentia

Family: Muridae

Common names: English: Harvest Mouse

Taxonomic remarks: Ellerman (1961) and Agrawal (2000) recognize *Micromys minutus erythrotis* (Blyth, 1855) from India. Musser and Carleton (1993) consider that critical revision is required to determine whether this widespread species represents one or more species. Specimens from Asia are morphologically very distinct from European specimens (Mike Jordan, *pers. comm.*)

Habit: Diurnal, arboreal, builds nests on tree tops

Habitat: Tropical evergreen, Tropical and Subtropical moist forest tract, bamboo thickets

Niche: Tall trees and bamboo thickets, forest floor with profuse litter in the proximity of forest village with crop fields, moist and wet areas

Elevation: 300m and above

Distribution

Global: Most of Eurasia, China, India, Japan, Korea, Mongolia, Russia, Taiwan

South Asia: India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 3/3, Fragmented

Habitat status: Decrease in area due to human activities and extraction of forest produce

Threats

Habitat loss and degradation due to small-scale logging and expansion of agriculture

Trade: Harvested for consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, Museum records, informal sightings, literature; estimated; inferred

Status

This workshop (Ver. 3.1) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species. No major threats.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history studies

Management: Monitoring

Captive stocks: None

LEAST CONCERN in South Asia

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Mike Jordan, Shomen Mukherjee, A.R. Binu Priya, S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Micromys minutus* (Pallas, 1771) is known in India



Distribution of *Micromys minutus* (Pallas, 1771) in South Asia (India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang Namdapha NP	27°23' to 27°39'	96°15' to 96°58'	Temp. F.	S.S. Saha (pers. comm.)
Meghalaya				
East Khasi Hills Cherrapunji	25°18'	91°42'	Temp. F.	Agrawal (2000)
Nagaland				
? location	-	-	Temp. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Microtus juldaschi (Severtzov, 1879)

VULNERABLE in South Asia

Synonyms: *Neodon juldaschi* Severtzov, 1879; *Pitymys juldaschi* (Severtzov, 1879); *Microtus carruthersi* Thomas, 1909; *Pitymys carruthersi* (Thomas, 1909)

Order: Rodentia

Family: Muridae

Common names: English: Juniper Vole

Taxonomic remarks: It belongs to subgenus *Neodon* Hodgson, 1849. The status of the distinctive *Microtus carruthersi* Thomas, 1909 is unresolved (Musser and Carleton, 1993).

This form was treated by some as a separate species (Ellerman and Morrison-Scott, 1951), while by others as a synonym of *Microtus juldaschi* (Severtzov, 1879) (Corbet, 1978). At present, following Musser and Carleton (1993), we provisionally include *Microtus carruthersi* Thomas, 1909 under *Microtus juldaschi* (Severtzov, 1879) with a question

Habit: Diurnal, terrestrial, herbivorous

Habitat: Temperate moist forests

Niche: Temperate forests

Elevation: 3,000-3,500m

Distribution

Global: Afghanistan, China, Kirghizia, Kurdistan, Pakistan, Russia, Tadjikistan

South Asia: Pakistan

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 1/1

Habitat status: Decrease in habitat due to human activities

Threats

Habitat loss and degradation due to natural disasters in the form of avalanches and landslides

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; subjective; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED** ↓

VULNERABLE in South Asia B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, genetic research

Management: Habitat management, limiting factor

Captive stocks: None

Comments

Srinivasulu and Pradhan (2003) opined that this species may also be occurring in India in disputed Kashmir. Although doubted to be also occurring in India (Musser & Carleton, 1993; Srinivasulu & Pradhan, 2003) this taxon is presently known from single location in the range. As the population is under threat due to natural causes it has been tentatively assessed as Vulnerable

Sources

Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Microtus juldaschi* (Severtzov, 1879) is known in Pakistan



Distribution of *Microtus juldaschi* (Severtzov, 1879) in South Asia (Pakistan) from literature and field studies

Distribution in
South Asia

Lat. Long.

Habitat Notes / Sources

PAKISTAN

North West Frontier Province

Chitral

Baroghil

36°51' 73°22' Temp. F. Roberts (1997)

***Microtus leucurus* (Blyth, 1863)**

LEAST CONCERN in South Asia

Synonyms: *Phaiomys leucurus* Blyth, 1863; *Arvicola blythi* Blanford, 1875; *Microtus (Phaiomys) waltoni petulans* Wroughton, 1911; *Pitymys leucurus petulans* (Wroughton, 1911); *Phaiomys everesti* Thomas & Hinton, 1922; *Pitymys leucurus everesti* (Thomas & Hinton, 1922)

Order: Rodentia

Family: Muridae

Common names: English: Blyth's Vole

Taxonomic remarks: Ellerman (1961) included this species under subgenus *Phaiomys* Blyth, 1863, and listed three subspecies *Pitymys leucurus leucurus* (Blyth, 1863), *Pitymys leucurus petulans* (Wroughton, 1911), and *Pitymys leucurus everesti* (Thomas & Hinton, 1922). Agrawal (2000) synonymised all the subspecies under the nominate species

Habit: Diurnal, fossorial

Habitat: Temperate forests. Affects high rocky mountains with scattered patches of grassland. Certain part of the year its habitat is completely covered in snow

Niche: Rock crevices

Elevation: ~4,500m

Distribution

Global: China, India, Nepal

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000]

Area of Occupancy: > 2,001sq km [India > 2,000; Nepal > 2,000]

Locations/subpopulations: 5/4, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% during the last 10 years and a similar trend in the next 10 years is predicted. Ladakh, Kangra and Central Nepal populations could be distinct

Threats

Loss of habitat, fragmentation, human interference, war

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, limiting factor

Management: Habitat management, captive breeding for benign introductions

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Ellerman and Morrison-Scott, 1951; Shreshta, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A.R. Binu Priya

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Microtus leucurus* (Blyth, 1863) is known in India and Nepal



Distribution of *Microtus leucurus* (Blyth, 1863) in South Asia (India, Nepal) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Himachal Pradesh

Kangra 32°26' 76°16' Temp. F. Agrawal (2000)

Jammu and Kashmir

Ladakh 34°00' 78°00' Mon. Agrawal (2000)
Ladakh St. F.

NEPAL

Western Nepal

Annapurna CA 28°35' 83°57' Temp. F. Shreshta (1997)
Mustang 29°11' 83°58' Temp. F. Shreshta (1997)

Eastern

Nepal

East of Mt. Everest - - Temp. F. Ellerman and Morrison-Scott (1951); Shreshta (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Microtus sikimensis* (Hodgson, 1849)**

Synonyms: *Neodon sikimensis* Hodgson, 1849; *Pitymys sikimensis* (Hodgson, 1849) *Arvicola thricolis* Gray, 1863

Order: Rodentia

Family: Muridae

Common names: English: Sikkim Vole

Taxonomic remarks: None

Habit: Diurnal, fossorial, gregarious lives in groups of 20 individuals

Habitat: Tropical and sub tropical forests, temperate forests and grasslands. Affects rhododendron, coniferous forests and upland meadows

Niche: Forest floor under rocks, bushes and leaf litter

Elevation: > 2,500m

Distribution

Global: Bhutan, China, India, Nepal

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan <5,000; India <20,000; Nepal >20,000]

Area of Occupancy: > 2,001sq km [Bhutan <500; India <2,000; Nepal >20,000]

Locations/subpopulations: 16/4, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% during the last 20 years and a similar trend in the next 20 years is predicted due to microhabitat changes, fuel wood collection, presence of invasive alien species (cats, dogs)

Threats

Habitat loss and degradation due to small-scale logging, invasive alien species (directly impacting the habitat), and to some extent domestic dogs and cats pose threat to this species. This species ventures very less out in the open and is mostly found frequenting tunnels

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Locally abundant, reproductive rate is high hence large litter size. No data is available on Bhutan population

Data source

Museum records, informal sightings, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bhutan: Endangered ↓ Vulnerable B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

LEAST CONCERN in South Asia

India: Vulnerable ↓ NearThreatened B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Nepal: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Nepal

Central Nepal: Lang Tang NP; *Eastern Nepal:* Kanchun Junga NP

Recommendations

Research: Survey, life history, epidemiology

Management: Habitat management, monitoring

Conservation measures: Needed: Management at community level, provision of livelihood alternatives, public awareness through education, protected area management and site based actions in Protected Areas

Captive stocks: None

Comments

Biswas and Khajuria (1957), and Abe (1971) reports its occurrence in Nepal

Sources

Agrawal, 2000; Ellerman, 1961; Shreshta, 1997; Srinivasulu and Pradhan, 2003

Compilers

S.S. Saha, Shomen Mukherjee, A.R. Binu Priya

Reviewers: S.S. Saha

Recent Field Studies

None

Distribution of *Microtus sikimensis* (Hodgson, 1849) in South Asia (Bhutan, India, Nepal) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Lat.	Long.	Habitat	Notes / Sources
BHUTAN								
Me La	27°57'	91°39'	Mon. St. F.	Ellerman (1961); Agrawal (2000)	28°47'	83°42'	Mon. St. F.	Shreshta (1997)

INDIA

West Bengal

Darjiling	27°28'	88°04'	Mon. St. F.	S.S. Saha (pers. comm.)
Singalila ridge			Temp. F.	Agrawal (2000)

? location

Sikkim

Yumthang	27°50'	88°42'	Temp. F.	Agrawal (2000)
Kapup	-	-	Temp. F.	Agrawal (2000)

North Sikkim

Lachen	27°44'	88°33'	Temp. F.	Agrawal (2000); S.S. Saha (pers. comm.); Teesta
Lachen			Temp. F.	Agrawal (2000); S.S. Saha (pers. comm.); Teesta

Thangu

Umthaj

NEPAL

Central Nepal

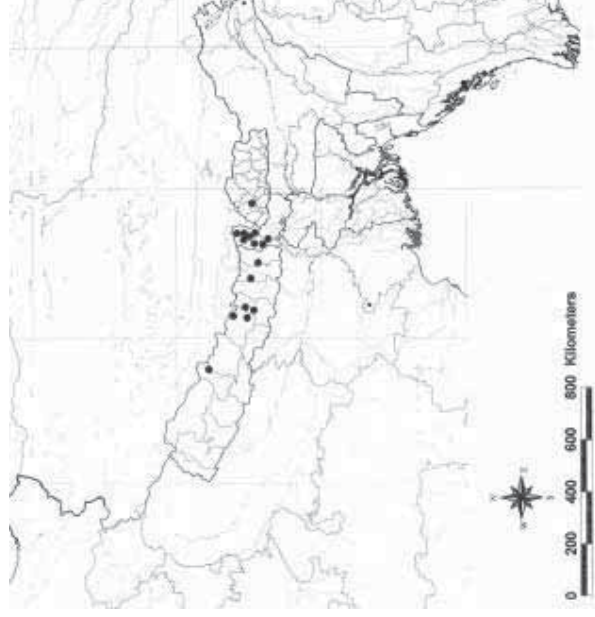
Gosaikund	28°05'	85°25'	Mon. St. F.	Shreshta (1997)
Lang Tang NP	28°16'	85°37'	Mon. St. F.	Shreshta (1997)
Tharepati	28°01'	85°30'	Mon. St. F.	Shreshta (1997)

Eastern Nepal

Dhankuta	-	-	Mon. St. F.	Shreshta (1997)
Solukhumbu	-	-	Mon. St. F.	Shreshta (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Microtus sikimensis* (Hodgson, 1849) is known in Bhutan, India and Nepal



***Millardia gleadowi* (Murray, 1885)**

LEAST CONCERN

Synonyms: *Mus gleadowi* Murray, 1885

Order: Rodentia

Family: Muridae

Common names: English: Sand-coloured Metad

Taxonomic remarks: None

Habit: Nocturnal, fossorial

Habitat: Thorny scrub in hot deserts, and semi deserts

Niche: Dry sandy and rocky areas away from cultivated lands

Elevation: Unknown

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001sq km [India > 2,000; Pakistan > 2,000]

Locations/subpopulations: 14/7, Fragmented

Habitat status: Decrease in habitat due to change in land use patterns

Threats

Human interference

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimens, informal sightings, literature; observed; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) LEAST CONCERN

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Rajasthan: Desert NP

Recommendations

Research: Survey, epidemiology

Management: Monitoring

Captive stocks: None

Comments

Research on this species is ongoing through Central Arid Zone Research Institute, Jodhpur, India

Sources

Agrawal, 2000; Kankane, 2004; Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Millardia gleadowi* (Murray, 1885) is known in India and Pakistan



Distribution of *Millardia gleadowi* (Murray, 1885) (Endemic to India and Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
INDIA									
Gujarat									
Banaskantha	24°10'	72°26'	Semi D.	Agrawal (2000)	Karachi	24°48'	67°02'	Semi D.	Roberts(1997)
Palanpur					Clifton				
Rajkot	25°44'	75°35'	Semi D.	Agrawal (2000)	Tharparkar	-	-	D.	Roberts(1997)
Rajkot					Tharparkar				
Surendranagar	22°59'	71°28'	Semi D.	Agrawal (2000)					
Dhrangadhra									
Rajasthan									
Barmer and	-	-	D.	Kankane (2004)					
Jaisalmer									
Desert NP									
Bhopalgarh	26°39'	73°29'	D.	Agrawal (2000)					
Bhopalgarh									
Bikaner	28°15'	76°36'	D.	Agrawal (2000)					
Bikaner									
Jodhpur	26°17'	73°01'	D.	Agrawal (2000)					
Jodhpur									
Pali	25°46'	73°20'	D.	Agrawal (2000)					
Pali									
PAKISTAN									
Baluchistan									
Loralai	30°22'	68°26'	D.	Roberts (1997)					
Loralai									
North West Frontier Province									
Dera Ismail									
Khan									
Kirgi	-	-	Semi D.	Roberts (1997)					
Sind									
Hyderabad	25°24'	68°22'	Semi D.	Roberts(1997)					
Hyderabad									
Pithoro	25°31'	69°23'	Semi D.	Roberts(1997)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Millardia kondana Mishra and Dhanda, 1975

CRITICALLY ENDANGERED

Synonyms: None

Order: Rodentia

Family: Muridae

Common names: English: Kondana Rat, Large Metad

Taxonomic remarks: Large-sized metad unique in possessing six plantar pads. Corbet and Hill (1992) remark that "in describing *M. kondana* the authors did not mention the presence or absence of *M. meltada* in the same or adjacent localities, although the latter has been recorded from Pune and from Dharwar where they are of normal size, much smaller than *M. kondana*". One of the survey parties of Zoological Survey of India, Western Regional Station, Pune, has also collected *Millardia kondana* Mishra & Dhanda, 1975 from the type locality during a survey conducted in 1990

Habit: Nocturnal, fossorial

Habitat: Tropical and subtropical dry deciduous forests, tropical scrub

Niche: Bushy scrub, sometimes found to build nests

Elevation: ~1,207m

Distribution

Global: Endemic to India

Extent of Occurrence: < 100 sq km

Area of Occupancy: < 10 sq km

Locations/subpopulations: 1/1

Habitat status: Decrease in habitat due to human induced changes

Threats

Loss of habitat, grazing, human interference

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimens, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **CRITICALLY ENDANGERED**

B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, single location with major threats affecting habitat area and quality.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, limiting factor research

Management: Habitat management, captive breeding for benign introductions

Conservation measures: *Needed*: Research to monitor the population numbers, trend, habitat status, biology, ecology

Captive stocks: None

Comments

No developmental activities are permitted near the type locality since it belongs to the Ministry of Defence and the area has historical and archaeological significance

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: M.S. Pradhan

Recent Field Studies

M.S. Pradhan in Sinhgad fort, Pune, Maharashtra, India, 1991-1992, Rodent Survey

Location from where *Millardia kondana* Mishra and Dhanda, 1975 is known in India



Distribution of *Millardia kondana* Mishra and Dhanda, 1975 (Endemic to India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Maharashtra				
Pune	18°23'	73°42'	Trop. F.	Agrawal (2000); Srinivasulu and Pradhan (2003); Type locality from where it has been recently collected (M.S. Pradhan, pers. comm.)
Singhgarh				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Millardia meltada (Gray, 1837)

LEAST CONCERN

Synonyms: *Golunda meltada* Gray, 1837; *Rattus meltada meltada* (Gray, 1837); *Mus lanuginosus* Elliot, 1839; *Mus listoni* Wroughton, 1907; *Mus comberi* Wroughton, 1907; *Millardia meltada pallidor* Ryley, 1914; *Rattus meltada pallidor* (Ryley, 1914); *Millardia meltada dunni* Thomas, 1917

Order: Rodentia

Family: Muridae

Common names: English: Soft-furred Metad, Soft-furred Field Rat; Tamil: *Pul Eli*

Taxonomic remarks: Possesses five plantar pads. Ellerman (1961) included this species under the genus *Rattus* Fischer, 1803 and recognized two subspecies, namely *Rattus meltada meltada* (Gray, 1837) and *Rattus meltada pallidor* (Ryley, 1914). Corbet and Hill (1992) listed three subspecies, namely, *Millardia meltada pallidor* Ryley, 1914, *Millardia meltada dunni* Thomas, 1917 and *Millardia meltada singuri* Mandal & Ghosh, 1981. Agrawal (2000) synonymised *Millardia meltada pallidor* Ryley, 1914 and *Millardia meltada singuri* Mandal & Ghosh, 1981 with the nominate subspecies. However, *Millardia meltada singuri* Mandal & Ghosh, 1981 has been retained here as a valid subspecies following Pradhan *et al.* (*in press*). Two subpopulations are recognised from India (Srinivasulu & Pradhan, 2003; Pradhan *et al.*, *in press*).

Habit: Nocturnal, fossorial

Habitat: Tropical and sub tropical dry deciduous forests, tropical grasslands, irrigated croplands and grasslands with gravel. Agriculture lands, water courses, embankments, dry rocky hills

Niche: Gravelly areas, bunds of fields, largely cultivated areas

Elevation: 0-2,670m

Distribution

Global: Endemic to South Asia

South Asia: India, Nepal, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal < 20,000; Pakistan > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001sq km [India > 2,000; Nepal < 2,000; Pakistan > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: Many/many, Contiguous

Habitat status: Unknown

Threats

Habitat loss and degradation due to infrastructure development, invasive alien species (directly impacting the habitat), exotic plants (in Sri Lanka), harvest for local consumption purpose, accidental mortality by poisoning for hunting, pest control practices (Pakistan, India), pesticides used in agriculture, drowning, domestic and wild predators, and also due to pathogens or parasites

Trade: Local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Widespread and abundant species

Data source

Field studies, museum records, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) LEAST CONCERN

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

Pakistan: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Mrugvani NP, Nagarjunasagar Srisailem TR, Nelapattu WS, Pocharam WS, Pranahita WS, Pulicat WS, Siwaram WS, Sri Venkateshwara NP

Sri Lanka

Southern Province: Yala NP

Recommendations

Research: Survey, life history studies

Management: Monitoring

Captive stocks: None

Comments

Khan (1982) reports its occurrence in Bangladesh based on Poche *et al.* (1979)

Sources

Agrawal, 2000; Ellerman, 1961; Phillips, 1980; Roberts, 1997; Shreshtha, 1997; Srinivasulu and Pradhan, 2003 BIS on species by: A. Visa *et al.*, C. Srinivasulu and Bhargavi Srinivasulu, K. Shenoy, P. Neelananarayanan, P. Padmanabhan, W.A.M.K. Weerasinghe, W.L.D.P.T.S. de A. Goonatilake, Chakraborty *et al.*, 2004, Pradhan and Kurup. 2001, Phillips, 1935.

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

India

P.S. Easa *et al.*, Western Ghats of Kerala, 1993-1998, Survey of Small Mammals
Karthik Shankar and R. Sukumar, Nilgiri Hills, 1994-1996, Community ecology of small mammals
Neelananarayanan, P., In and around Putthanampatti and Omandur, Trichy district, 2003, Survey of rodents and insectivores

Neelananarayanan, P., R. Nagarajan and R. Kanakasabai, near Mayiladuthurai, Nagapattinam district, 1994-1995, Burrow morphology of rodent pests

Srinivasulu, C. and Bhargavi Srinivasulu, Throughout Andhra Pradesh, 1996 onwards, Status of Mammals of Andhra Pradesh

Srinivasulu, C., Nagarjunasagar Srisaillam TR, 1996 onwards, Biodiversity of Nagarjunasagar Srisaillam Tiger Reserve

Srinivasulu, C. Kasu Brahmananda Reddy NP, 2002 onwards, Faunal inventorying of Kasu Brahmananda Reddy NP (in collaboration with FBS/ZSI, Hyderabad)

Srinivasulu, C. and Bhargavi Srinivasulu, Kurnool grasslands, Ranga Reddy, Hyderabad and Secunderabad environs, and Nagarjunasagar Srisaillam Tiger Reserve, 2002 onwards Non-volant small mammals of select areas of Andhra Pradesh

University of Agricultural Science, in Karnataka, 1997, Agricultural pest survey Punjab Agriculture University in Punjab State, 1990-97, pests of agriculture, Pest-survey

Pakistan

Anwar Mann, M., Khanawal and Changa Manga, 1990-1992, Small mammals study

Sri Lanka

Samayawardhane, L.A. and W.A.M.K. Weerasinghe, Kekandura Forest, Matara District, Southern Province, 2001-2002, Studies on population ecology, population distribution, species-resource relationships of myomorphs in Kakandura FR, Matara

Locations from where *Millardia meltada* (Gray, 1837) is known in India, Nepal, Pakistan and Sri Lanka



Distribution of *Millardia meltada* (Gray, 1837) (Endemic to India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andhra Pradesh									
Adilabad	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Velligode	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes. South of Rollapenta (in 15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Chennur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Indhanpally	-	-	Trop. F.	Near Utnoor (19°22' N & 78°46' E)	Mahbubnagar Amrabad	16°28'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Kadem	-	-	Trop. F.	Near Utnoor (19°22' N & 78°46' E)	Farahabad	16°17'	78°41'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Nirmal	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mannanur	16°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Utnoor	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Chittoor					Medak				
Chandragiri Hill environs	13°35'	79°19'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Dantepally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Medak (17°45' N & 78°15' E)
Mamandur environs	13°44'	79°29'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Medak Sangareddy	17°45' 17°37'	78°15' 78°05'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; C. Srinivasulu & Bhargavi Srinivasulu, BIS; also near Manjira Barrage in Manjira WS
East Godavari									
Kakinada environs	16°56'	82°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nalgonda	16°42'	78°56'	Trop. F.	C. Srinivasulu (pers. comm.)
Metlapalem	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Kakinada (16°56' N & 82°13' E)	Devarkonda Nagarjunasagar	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Guntur	16°25'	80°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Guntur Macherla	16°29'	79°26'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Hyderabad	17°15'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nellore	13°49'	79°57'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad Kasu Brahma-nanda Reddy NP	17°22'	78°28'	Trop. F.	Srinivasulu <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Doravarisatram Gudur Nelapattu	14°08'	79°59'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Doravarisatram (13°49' N & 79°57' E)
Karimnagar	18°39'	79°40'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sulurpet Tada	13°42' 13°35'	80°01' 80°02'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; C. Srinivasulu & Bhargavi Srinivasulu, BIS
Manthani	15°58'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Prakasam Cumbum Diguvaemetta	15°34' 15°23'	79°07' 78°53'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram WS
Kurmoor Pecheruvu	16°03'	78°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Rangareddy Saroornagar	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in suburb of Hyderabad (17°15' N & 78°28' E)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Millardia meltda* (Gray, 1837) (Endemic to India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Warrnagal Etur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Kangra	32°26'	76°16'	Mon. St. F.	Agrawal (2000)
Pasra Tadwai	18°12'	80°10'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Solan Solan	30°55'	77°07'	Mon. St. F.	Agrawal (2000)
Venkatapuram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Jharkhand Hazaribagh Hazaribagh	24°00'	80°15'	Trop. F.	Agrawal (2000)
Bihar Darbhanga Darbhanga	-	-	Trop. F.	Agrawal (2000)	Karnataka Bangalore Bangalore GKVK Campus Nagarbhavi Shivanahalli	12°59' - - - -	77°35' - - - -	Trop. F. Trop. F. Trop. F. Trop. F.	Agrawal (2000) K. Shenoy, BIS; in Bangalore (12°59' N & 77°35' E), Vidyananyapura K. Shenoy, BIS; in Bangalore (12°59' N & 77°35' E), near Bangalore University K. Shenoy, BIS; in Bangalore (12°59' N & 77°35' E)
Gujarat Banaskantha Palanpur	24°10'	72°26'	Trop. F.	Agrawal (2000)	Dharwar Dharwar	15°30'	75°20'	Trop. F.	Agrawal (2000)
Kutch Kutch	22°35'	70°00'	Trop. F.	Agrawal (2000)	Kodagu Kodagu	-	-	-	-
Junagadh Junagadh	21°15'	70°20'	Trop. F.	Agrawal (2000)	Coorg	12°25'	75°45'	Trop. F.	Agrawal (2000); Pradhan & Kurup (2001); also at Kutta
Rajkot Rajkot	25°44'	75°35'	Trop. F.	Agrawal (2000)	Madhya Pradesh East Nimar Asirgarh Nimar	29°21' -	76°16' -	Trop. F. Trop. F.	Agrawal (2000) Agrawal (2000)
Surendranagar Dhrangahra	22°59'	71°28'	Trop. F.	Agrawal (2000)	Gwalior Gwalior	26°12'	78°12'	Trop. F.	Agrawal (2000)
Haryana Ambala Ambala	30°22'	76°46'	Trop. F.	Agrawal (2000)	Hoshangabad Hoshangabad	22°45'	77°30'	Trop. F.	Agrawal (2000)
Hissar Hissar	29°10'	75°45'	Trop. F.	Agrawal (2000)	Mandla Mandla	22°42'	81°00'	Trop. F.	Agrawal (2000)
Himachal Pradesh Kangra Dhamtal	-	-	Mon. St. F.	Agrawal (2000)	Sagar Sagar	23°45'	78°45'	Trop. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Millardia meltada* (Gray, 1837) (Endemic to India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
Rewa	24°45'	81°30'	Trop. F.	Agrawal (2000)	Madurai	9°56'	78°07'	Trop. F.	Agrawal (2000)
Rewa					Madurai				
Maharashtra					Nilgiris	11°24'	76°42'	Trop. F.	Agrawal (2000); Pradhan & Kurup (2001)
Ahmadnagar	19°05'	74°44'	Trop. F.	Agrawal (2000)	Ootacamund	12°00'	78°00'	Trop. F.	Agrawal (2000)
Ahmadnagar					Salem				
Chandrapur	19°57'	79°18'	Trop. F.	Agrawal (2000); now Chandrapur	Salem				
Chanda					Trichy				
Nasik	20°13'	74°05'	Trop. F.	Agrawal (2000)	Omandur	-	-	Trop. F.	P. Neelamarayanan, BIS
Nasik					Puttanampatti	-	-	Trop. F.	P. Neelamarayanan, BIS
Pune	18°32'	73°52'	Trop. F.	Agrawal (2000)	Uttar Pradesh				
Poona					Gorakhpur	26°55'	83°15'	Temp. F.	Agrawal (2000)
Punjab					Gorakhpur				
Gurdaspur	32°17'	75°39'	Mon.	Agrawal (2000)	Kanpur	26°30'	80°21'	Temp. F.	Agrawal (2000)
Pathankot			St. F.		Kanpur				
Ludhiana	30°53'	75°51'	Trop. F.	Agrawal (2000)	Varanasi	25°20'	83°00'	Temp. F.	Agrawal (2000)
Ludhiana					Varanasi				
Rajasthan					West Bengal				
Churu	26°55'	75°12'	Semi D.	Agrawal (2000)	Hugli	21°55'	88°05'	Trop. F.	Agrawal (2000)
Churu					Hugli				
Jhunjhunu	-	-	Semi D.	Agrawal (2000)	NEPAL				
Jhunjhunu					Western Nepal				
Jalore	25°10'	72°15'	D.	Agrawal (2000), habitat: halophytic vegetation	Annapura CA	28°35'	83°57'	Mon.	Shreshia (1997)
Jalore								St. F.	
Sirohi	24°29'	72°47'	Semi D.	Agrawal (2000)	PAKISTAN				
Abu Road	25°07'	73°10'	Semi D.	Agrawal (2000)	Punjab	-	-	Trop. F.	Roberts (1997); many locations
Bisalpur					Bahawalnagar	29°59'	73°16'	Trop. F.	Roberts (1997)
Sri Ganganagar	29°55'	73°53'	Semi D.	Agrawal (2000)	Bahawalnagar				
Sri Ganganagar					Faisalabad	31°25'	73°07'	Trop. F.	Roberts (1997)
Tamil Nadu					Faisalabad				
Coimbatore	11°15'	77°20'	Trop. F.	Agrawal (2000)	Gujrat	32°34'	74°04'	Trop. F.	Roberts (1997)
Coimbatore					Gujrat				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Millardia melitada* (Gray, 1837) (Endemic to India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia									
Southern Province									
Lahore					Galle				
Changa Manga Forest	31°05'	73°58'	Trop. F.	Roberts (1997)	Baddegama	6°10'	80°11'	Trop. F.	W.L.D.P.T.S. de A. Goonatliake, BIS
Lahore	31°031'	74°24'	Trop. F.	Roberts (1997)	Hambantota			Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatliake, BIS
Sargodha					Hambantota	6°07'	81°07'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatliake, BIS
KallarKahar	32°47'	72°42'	Trop. F.	Roberts (1997)	Ranna	6°06'	80°52'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatliake, BIS
Sialkot					Weigatta	6°12'	81°12'	Trop. F.	Goonatliake, BIS
Kailhan			Trop. F.	Roberts (1997)	Yala NP	6°25'	81°30'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatliake, BIS
Sind									
Tharparkar					Matara				
Tharparkar			D.	Roberts (1997)	Matara	5°56'	80°32'	Trop. F.	W.A.M.K. Weerasinghe, BIS
Thatta					Uva Province				
Malir	24°59'	67°13'	Semi D.	Roberts (1997)	Monaragala				
SRI LANKA									
North Central Province									
Polonnaruwa					Wellawaya				
Kantalai	8°22'	81°02'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatliake, BIS					
Nikawewa			Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatliake, BIS					
North Eastern Province									
Ampara									
Kumana	6°31'	81°42'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatliake, BIS					
North Western Province									
Puttalam									
Eluwamkulama			Trop. F.	W.L.D.P.T.S. de A. Goonatliake, BIS; in Villu habitat (grassland). Threats include domestic predators					
Monaravillu			Trop. F.	W.L.D.P.T.S. de A. Goonatliake, BIS; in Villu habitat (grassland). Threats include domestic predators					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Mus booduga* (Gray, 1837)**

Synonyms: *Leggada booduga* Gray, 1837; *Mus lepidus* Elliot, 1839; *Mus terricolor* Blyth, 1851; *Mus albidiventris* Blyth, 1852; *Mus beavani* Peters, 1866; *Leggada dunni* Wroughton, 1912 ?; *Gatamyia weragami* Deraniyagala, 1965

Order: Rodentia

Family: Muridae

Common names: English: Common Indian Field Mouse, Little Indian Field Mouse; Marathi: *Bhurya/Chota Umdir*

Taxonomic remarks: This species belongs to subgenus *Mus* Linnaeus, 1758. Ellerman (1961) provisionally lists only two subspecies, namely *Mus booduga booduga* (Gray, 1837) and *Mus booduga lepidoides* (Fry, 1931). The former including the races '*lepidus*', '*terricolor*', and '*dunni*'. However, chromosomal evidence presented by Sharma *et al.* (1986) supports the specific status of both *Mus booduga* (Gray, 1837) and *Mus terricolor* Blyth, 1851, including *Mus dunni* (Wroughton, 1912). Still confusion persists regarding races and overlap of characters in the representative taxon belonging to the subgenus *Mus*. Hence to avoid confusions regarding forms akin to *Mus booduga* (Gray, 1837), Agrawal (2000) synonymised *Mus dunni* (Wroughton, 1912) and *Mus terricolor* Blyth, 1851 with *Mus booduga* (Gray, 1837), a trend earlier followed by Ellerman and Morrison-Scott (1951). No subspecies is recognised but several variants (colour and chromosome numbers)

Habit: Nocturnal, fossorial, gregarious, generalist feeder

Habitat: Tropical, subtropical dry deciduous forests, agricultural/irrigated field

Niche: Irrigated fields, edges of cultivation, agricultural lands and near human dwellings, patches of thorn scrub

Elevation: Up to 4,000m

Distribution

Global: Bangladesh, India, Myanmar, Nepal, Pakistan, Sri Lanka

South Asia: Bangladesh, India, Nepal, Pakistan, Sri Lanka
Extent of Occurrence: > 20,000 sq km [Bangladesh not known; India > 20,000; Nepal > 20,000; Pakistan > 20,000; Sri Lanka >20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh not known; India > 2,000; Nepal > 2,000; Pakistan > 2,000; Sri Lanka >2,000]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative decrease of the habitat due to habitat alteration

Threats

Habitat loss and degradation due to expansion of agricultural activities, livestock grazing, non-farm activities, accidental mortality due to poisoning for hunting, pest control practices, natural disasters such as, drought, storms, flooding, habitat change, persecution by domestic predators, harvested for local consumption purposes

Trade: Local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease of the population due to pest control practices

LEAST CONCERN in South Asia

Data source

Field study, museum records, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bangladesh: Data Deficient

Rationale: No exact location known

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation:

Bangladesh: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Eturnagaram WS, Gundla Brahmeshwaram Metta WS, Kawal WS, Manjira WS, Nagarjunasagar Srisailem TR, Pocharam WS, Sri Venkateshwara NP

Madhya Pradesh: Kuno-Palpur WS

Kerala: Eravikulam WS

Rajasthan: Darrah WS

Orissa: Chandaka-Dampara WS

Tamil Nadu: Kalakkad-Mundunthurai TR, Srivilliputtur WS

Sri Lanka

Runakanda FR, Sinharaja FR, Udawalawe NP, Waratelgoda FR, Yagirala FR

Recommendations

Research: Survey, genetic research, taxonomic studies

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Phillips, 1980; Roberts, 1997; Srinivasulu and Pradhan, 2003; Tiwari *et al.*, 2002 BIS on species by: A. Visa *et al.*, C. Srinivasulu and Bhargavi Srinivasulu, J. Joshua, K. Mukta Bai, P. Neelanarayanan, P. Padmanabhan, W.L.D.P.T.S. de A. Goonatilake, Khan, 1982, Chakraborty *et al.*, 2004; Pradhan and Kurup, 2001; Pradhan, 2002; Johnson *et al.*, 1980; Shreshtha, 1997; Phillips, 1935; Karunaratne, 1989; Zoysa and Raheem, 1987; Balasubramaniam *et al.*, 1990.

Compilers

A.K. Chakravarthy, Mike Jordan, Shomen Mukherjee, A.R. Binu Priya, S.U. Sarker, C. Srinivasulu, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

India

Srinivasulu, C. and Bhargavi Srinivasulu, many localities in Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh

Srinivasulu, C., Nagarjunasagar Srisailem Tiger Reserve, 1996 onwards, Biodiversity of Nagarjunasagar Srisailem Tiger Reserve, Andhra Pradesh.

Srinivasulu, C., Kasu Brahmananda Reddy National Park, 2002 onwards, Faunal inventorying of Kasu Brahmananda Reddy National Park, Andhra Pradesh (in collaboration with FBS/Zoological Survey of India, Hyderabad)

C. Srinivasulu and Bhargavi Srinivasulu, Kurnool grasslands, Ranga Reddy district environs, Hyderabad and Secunderabad environs and Nagarjunasagar Srisailem Tiger Reserve, 2002 onwards, Non-Volant small mammals of select areas of Andhra Pradesh

Mukta Bai, K. and Yashoda L., Mysore city environs, Karnataka, 1970-1985, Rodents and their ecology

Easa *et al.*, throughout Kerala, 1993-1998, Survey of small mammals

Sivaprakasam, C., Mayiladuthurai, Nagapattinam district, Tamil Nadu, 1998, Burrow ecology of field rodents

Neelanarayanan, P., Nagapattinam and Thiruvavur districts, 1993-1995, Rodent population estimation

Neelanarayanan, P., Puttanampatti and Omandur environs, Tiruchy district, Tamil Nadu, 2003, Survey of small mammals.

Visa, A., P.O. Nameer and M.M. Animon, LRS

Thiruvazhamkunnu, Palakkad district, Kerala, February 2003, Diversity and abundance of rodents and insectivores in KAU campus, Palakkad and Thrissur

Sanjay Molur, 2003-ongoing, Distribution and status of rodents in Coorg, Western Ghats.

Sri Lanka

Karunaratne, Udawalawe National Park, Ratnapura District, Sabaragamuwa Province, Sri Lanka, 1989

Zoysa and Raheem, Sinharaja Forest Reserve, Ratnapura District, Sabaragamuwa Province, Sri Lanka, 1987

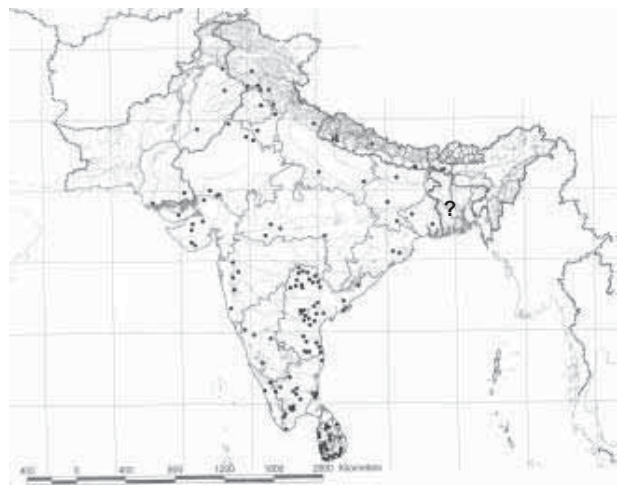
Balasubramaniam *et al.*, Yagirala Forest Reserve, Warateligoda Forest Reserve, Runakanda Forest Reserve, Galle district, Southern Province, Sri Lanka, 1990

Bahir, M. and S. Nananyakkara, Captive life history and siblicide in the Field Mouse, *Mus booduga*, 2000

Pakistan

Anwar Maan, M., Changa Manga Forest, Khanewal district, Punjab, Pakistan, 1990-1992, small mammal survey

Locations from where *Mus booduga* (Gray, 1837) is known in Bangladesh, India, Nepal, Pakistan and Sri Lanka



Distribution of *Mus booduga* (Gray, 1837) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH ? Locality	-	-	-	Khan (1982); Srinivasulu & Pradhan (2003)	Karimnagar Manthani	18°39'	79°40'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
INDIA Andhra Pradesh Adilabad Chennur	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kurnool Pecheruvu	15°58'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes in Nagarjunasagar Srisaillam TR
Indhanpally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Uttoor (19°22' N & 78°46' E)	Sunnipenta	16°03'	78°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Uttoor (19°22' N & 78°46' E)	Veligode	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes; south of Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Kadern	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Uttoor (19°22' N & 78°46' E)					
Nirmal	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Utnoor	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Kawal WS					
Chittoor					Mahubnagar Amrabad	16°28'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Chandragiri Hill	13°35'	79°19'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Farahabad	16°17'	78°41'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Mamandur	13°44'	79°29'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Sri Venkateshwara WS	Mannanur	16°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Talakona	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004), c. 114 km North of Chittoor (13°25' N & 79°00' E)	Medak Dantepally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Medak (17°45' N & 78°15' E); in Pocharam WS
Cuddapah	13°58'	79°21'	Trop. F.	Chakraborty <i>et al.</i> (2004); in Balapalli	Medak Sangareddy	17°45' 17°37'	78°15' 78°05'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS; also near Manjira Barrage in Manjira WS
Palakonda Hills	18°36'	83°45'	Trop. F.	Chakraborty <i>et al.</i> (2004)	Devarakonda Nagarjunasagar	16°42' 16°30'	78°56' 79°13'	Trop. F. Trop. F.	C. Srinivasulu (pers. comm.) C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
East Godavari					Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Addatigala	17°29'	82°01'	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 78 km NE of Rajamundry					
Kakinada	16°56'	82°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Metlapalem near Kakinada	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; (16°56' N & 82°13' E)					
Guntur									
Guntur	16°25'	80°15'	Trop. F.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Neelore Doravarisatram	13°49' 14°08'	79°57' 79°59'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS
Macherla	16°29'	79°26'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Gudur Nelapattu WS	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Doravarisatram (13°49' N & 79°57' E)
Tiger Valley	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)					
Hyderabad	17°15'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sulurpet Tada	13°42' 13°35'	80°01' 80°02'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad Kasu Brahma- nanda Reddy NP	17°22'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM. - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Mus booduga* (Gray, 1837) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Prakasam	15°34'	79°07'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rajkot	25°44'	75°35'	Trop. F.	Agrawal (2000)
Cumbum	15°23'	78°53'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS;	Rajkot	22°37'	70°56'	Trop. F.	Agrawal (2000)
Diguvametta				in GundlaBrahmeshwaram WS	Yankaner				
Rangareddy					Haryana				
Anatagiri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Ambala	30°22'	76°46'	Trop. F.	Agrawal (2000)
Saroornagar	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS;	Ambala	29°10'	75°45'	Trop. F.	Agrawal (2000)
				suburb of Hyderabad (17°15' N & 78°28' E)	Himachal Pradesh				
Araku	18°20'	82°52'	Trop. F.	Visakhapatnam	Dharmtal	-	-	Mon.	Agrawal (2000)
				Agrawal (2000)	Dharmtal			St. F.	
Warnagal					Kangra	32°26'	76°16'	Mon.	Agrawal (2000)
Etur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS;	Kangra			St. F.	
				tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E)	Solan	30°55'	77°07'	Mon.	Agrawal (2000)
Pasra	18°12'	80°10'	Trop. F.	in Etumagaram WS	Solan			St. F.	
Tadwai	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Jammu and Kashmir				
				C. Srinivasulu & Bhargavi Srinivasulu, BIS;	Udampur	32°56'	75°08'	Mon.	Agrawal (2000)
Venkatapuram	-	-	Trop. F.	tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E)	Udampur			St. F.	
				in Etumagaram WS	Jharkhand				
Bihar					Hazaribagh	24°00'	80°15'	Trop. F.	Agrawal (2000)
Darbhanga					Hazaribagh				
Darbhanga	-	-	Trop. F.	Agrawal (2000)	Paschim Singhbhum				
Gujarat					Chaibassa	22°34'	85°49'	Trop. F.	Agrawal (2000)
Mali	-	-	Trop. F.	Agrawal (2000)	Karnataka				
Banaskantha					Bellary	15°23'	77°14'	Trop. F.	Agrawal (2000)
Palanpur	24°10'	72°26'	Trop. F.	Agrawal (2000)	Bellary				
Kutch	22°35'	70°00'	Trop. F.	Agrawal (2000); J. Joshua, BIS; throughout the region	Dharwar	15°30'	75°20'	Trop. F.	Agrawal (2000)
Kutch					Dharwar				
Junagadh	21°15'	70°20'	Trop. F.	Agrawal (2000)	Gadag	15°25'	75°37'	Trop. F.	Agrawal (2000)
Junagadh	21°10'	70°36'	Trop. F.	Agrawal (2000)	Gadag				
Sasangir									

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Distribution of *Mus booduga* (Gray, 1837) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Kodagu Coorg	12°25'	75°45'	Trop. F.	Pradhan & Kurup (2001); Molur, S and Molur, P (per. obs.) 2005	Orissa Koira	21°55'	85°14'	Trop. F.	Agrawal (2000)
Shimoga Shimoga	13°56'	75°31'	Trop. F.	Agrawal (2000)	Khurda and Cuttaack Behantashi	-	-	Trop. F.	Tiwari <i>et al.</i> (2002); in Chandaka-Dampara WS; c. 20°22' N & 85°46'E
Kerala Idduki	-	-	Trop. F.	Pradhan (2002)	Dampara	-	-	Trop. F.	Tiwari <i>et al.</i> (2002); in Chandaka-Dampara WS; c. 20°22' N & 85°46'E
Eravikulam NP	-	-	Trop. F.	Pradhan (2002)	Deras	-	-	Trop. F.	Tiwari <i>et al.</i> (2002); in Chandaka-Dampara WS; c. 20°22' N & 85°46'E
Palakkad	-	-	Trop. F.	Visa <i>et al.</i> , BIS	Godibari	-	-	Trop. F.	Tiwari <i>et al.</i> (2002); in Chandaka-Dampara WS; c. 20°22' N & 85°46'E
Thiruvazhamkundu	-	-	Trop. F.	Visa <i>et al.</i> , BIS	Jhalara	-	-	Trop. F.	Tiwari <i>et al.</i> (2002); in Chandaka-Dampara WS; c. 20°22' N & 85°46'E
Thrissur	-	-	Trop. F.	A. Visa <i>et al.</i> , BIS, in Kerala Agriculture University Campus; north of Thrissur (10°31' N & 76°13' E)	Kaljhara	-	-	Trop. F.	Tiwari <i>et al.</i> (2002); in Chandaka-Dampara WS; c. 20°22' N & 85°46'E
Vellanikara	-	-	Trop. F.	A. Visa <i>et al.</i> , BIS, in Kerala Agriculture University Campus; north of Thrissur (10°31' N & 76°13' E)	Khumarkundi	-	-	Trop. F.	Tiwari <i>et al.</i> (2002); in Chandaka-Dampara WS; c. 20°22' N & 85°46'E
Madhya Pradesh									
Balaghat	21°48'	80°12'	Trop. F.	Agrawal (2000)	Punjab Gurdaspur	32°17'	75°39'	Mon. St. F.	Agrawal (2000)
Balaghat	21°48'	80°12'	Trop. F.	Agrawal (2000)	Pathankot	32°17'	75°39'	Mon. St. F.	Agrawal (2000)
Hoshangabad	22°45'	77°30'	Trop. F.	Agrawal (2000)	Ludhiana	30°53'	75°51'	Trop. F.	Agrawal (2000)
Hoshangabad	22°45'	77°30'	Trop. F.	Agrawal (2000)	Ludhiana	30°53'	75°51'	Trop. F.	Agrawal (2000)
Sehore	23°12'	77°08'	Trp. F.	Agrawal (2000)	Rajasthan Churu	26°55'	75°12'	Semi D.	Agrawal (2000)
Sehore	23°12'	77°08'	Trp. F.	Agrawal (2000)	Churu	26°55'	75°12'	Semi D.	Agrawal (2000)
Maharashtra					Jhunjhunu	-	-	Semi D.	Agrawal (2000)
Ahmadnagar	19°05'	74°44'	Trop. F.	Agrawal (2000)	Jhunjhunu	-	-	Semi D.	Agrawal (2000)
Ahmadnagar	19°05'	74°44'	Trop. F.	Agrawal (2000)	Jalore	25°10'	72°15'	Semi D.	Agrawal (2000), habitat: halophytic vegetation; elevation: 0-2000m
Chandrapur	19°57'	79°18'	Trop. F.	Agrawal (2000); now Chandrapur	Jalore	25°10'	72°15'	Semi D.	Agrawal (2000), habitat: halophytic vegetation; elevation: 0-2000m
Chanda	19°57'	79°18'	Trop. F.	Agrawal (2000); now Chandrapur	Sirohi	24°29'	72°47'	Semi D.	Agrawal (2000)
Nasik	20°13'	74°05'	Trop. F.	Agrawal (2000)	Abu Road	25°07'	73°10'	Semi D.	Agrawal (2000)
Nasik	20°13'	74°05'	Trop. F.	Agrawal (2000)	Bisalpur	25°07'	73°10'	Semi D.	Agrawal (2000)
Pune	18°32'	73°52'	Trop. F.	Agrawal (2000)					
Poona	18°32'	73°52'	Trop. F.	Agrawal (2000)					
Ratnagiri	17°00'	73°30'	Trop. F.	Agrawal (2000)					
Ratnagiri	17°00'	73°30'	Trop. F.	Agrawal (2000)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Mus booduga* (Gray, 1837) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Sri Ganganagar	29°55'	73°53'	Semi D.	Agrawal (2000)	Kanpur	26°30'	80°21'	Temp. F.	Agrawal (2000)
Sri Ganganagar	-	-	-	-	Kanpur	26°30'	80°21'	Temp. F.	Agrawal (2000)
Tamil Nadu					Varanasi	25°20'	83°00'	Temp. F.	Agrawal (2000)
Arupatty	-	-	Trop. F.	P. Neelamarayanan, BIS	West Bengal				
Coimbatore	11°15'	77°20'	Trop. F.	Agrawal (2000)	Bankura	23°15'	87°15'	Trop. F.	Agrawal (2000)
Coimbatore	11°15'	77°20'	Trop. F.	Agrawal (2000)	Bankura	23°15'	87°15'	Trop. F.	Agrawal (2000)
Kanyakumari	8°05'	77°34'	Trop. F.	Agrawal (2000)	Bengal Duars	25°58'	89°08'	Trop. F.	Agrawal (2000)
Cape Comorin	8°05'	77°34'	Trop. F.	Agrawal (2000)	Bengal Duars	25°58'	89°08'	Trop. F.	Agrawal (2000)
Madurai	9°56'	78°07'	Trop. F.	Agrawal (2000)		27°45'	89°55'		
Madurai	9°56'	78°07'	Trop. F.	Agrawal (2000)		27°45'	89°55'		
Kandachavadi	-	-	Trop. F.	P. Neelamarayanan, BIS					
Kandachavadi	-	-	Trop. F.	P. Neelamarayanan, BIS					
Menangudi	-	-	Trop. F.	P. Neelamarayanan, BIS					
Menangudi	-	-	Trop. F.	P. Neelamarayanan, BIS					
Ubeyavedanthapuram-	-	-	Trop. F.	P. Neelamarayanan, BIS					
Ubeyavedanthapuram-	-	-	Trop. F.	P. Neelamarayanan, BIS					
Visalur	-	-	Trop. F.	P. Neelamarayanan, BIS					
Visalur	-	-	Trop. F.	P. Neelamarayanan, BIS					
Nagapattinam	-	-	Trop. F.	P. Neelamarayanan, BIS	NEPAL				
Mayiladuthurai	11°01'	79°50'	Trop. F.	P. Neelamarayanan, BIS	Eastern Nepal				
Mayiladuthurai	11°01'	79°50'	Trop. F.	P. Neelamarayanan, BIS	Biratnagar	26°28'	87°17'	Trop. F.	Johnson <i>et al.</i> (1980)
Poraiyar	-	-	Trop. F.	P. Neelamarayanan, BIS					
Poraiyar	-	-	Trop. F.	P. Neelamarayanan, BIS					
Thillaiyadi	-	-	Trop. F.	P. Neelamarayanan, BIS	Far Western Nepal				
Thillaiyadi	-	-	Trop. F.	P. Neelamarayanan, BIS	Banke	28°10'	81°50'	Mon.	Agrawal (2000) St. F.
Thiruvaidaikazhi	-	-	Trop. F.	P. Neelamarayanan, BIS					
Thiruvaidaikazhi	-	-	Trop. F.	P. Neelamarayanan, BIS					
Thirukkalacheri	-	-	Trop. F.	P. Neelamarayanan, BIS					
Thirukkalacheri	-	-	Trop. F.	P. Neelamarayanan, BIS					
Salem	12°00'	78°00'	Trop. F.	Agrawal (2000)	Western Nepal				
Salem	12°00'	78°00'	Trop. F.	Agrawal (2000)	Chisapani	28°38'	81°17'	Mon. St. F.	Johnson <i>et al.</i> (1980)
Virudunagar	9°31'	77°38'	Trop. F.	J. Josua, BIS; near Srivilliputtur					
Ayyanarkoil	9°31'	77°38'	Trop. F.	J. Josua, BIS; near Srivilliputtur	Tikapur	28°30'	81°10'	Mon. St. F.	Johnson <i>et al.</i> (1980)
Senbagapothopu	-	-	Trop. F.	J. Josua, BIS; near Srivilliputtur					
Trichy	-	-	Trop. F.	P. Neelamarayanan, BIS	Barra	28°35'	83°57'	Mon. St. F.	Shreshta (1997)
Omandur	-	-	Trop. F.	P. Neelamarayanan, BIS	Annappurna CA	28°35'	83°57'	Mon. St. F.	Shreshta (1997)
Puttanampatti	-	-	Trop. F.	P. Neelamarayanan, BIS					
Puttanampatti	-	-	Trop. F.	P. Neelamarayanan, BIS					
Trichy	-	-	Trop. F.	J. Joshua, BIS; in the outskirts					
Trichy	-	-	Trop. F.	J. Joshua, BIS; in the outskirts					
Uttaranchal					PAKISTAN				
?Almora	29°50'	79°30'	Temp. F.	Agrawal (2000)	Punjab				
Kumaon	29°50'	79°30'	Temp. F.	Agrawal (2000)	Bahawalpur	29°23'	71°39'	Semi D.	Agrawal (2000)
	29°50'	79°30'	Temp. F.	Agrawal (2000)	Bahawalpur	29°23'	71°39'	Semi D.	Agrawal (2000)
	29°50'	79°30'	Temp. F.	Agrawal (2000)	Cholistan Desert	28°15'	70°45'	Semi D.	Roberts (1997)
	29°50'	79°30'	Temp. F.	Agrawal (2000)					
Uttar Pradesh					Faisalabad	31°25'	73°07'	Trop. F.	Roberts (1997)
Gorakhpur	26°55'	83°15'	Temp. F.	Agrawal (2000)	Faisalabad	31°25'	73°07'	Trop. F.	Roberts (1997)
Goarkhpur	26°55'	83°15'	Temp. F.	Agrawal (2000)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Mus booduga* (Gray, 1837) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Rawalpindi	33°43'	72°52'	Semi D.	Roberts (1997)	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in villu habitat (grassland). Threats include domestic predators
Margalla Hill						
Sialkot	32°30'	74°32'	Semi D.	Roberts (1997)	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in villu habitat (grassland). Threats include domestic predators
Sind						
Tharparkar	-	-	D.	Roberts (1997)		
Tharparkar						
Thatta	24°59'	67°13'	D.	Roberts (1997)	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Malir						
SRI LANKA						
Central Province						
Kandy	7°22'	80°50'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in montane forest and grasslands	Trop. F.	Karunaratne (1989)
Corbet's Gap						
Kandy	7°17'	80°38'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS	Trop. F.	Zoysa & Raheem (1987)
Matale						
Matale	7°31'	80°38'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in plantation
North Central Province						
Anuradhapura						
Kebithigollewa	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens and scrub jungle	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens and scrub jungle
Rajaganae Katipola	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in secondary forest, scrub jungle	Trop. F.	Balasubramaniam <i>et al.</i> (1990)
Siyabalawa	8°39'	80°41'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in ome gardens and scrub jungle	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
North Eastern Province						
Ampara	6°31'	81°42'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Kumana						
Trincomalee	8°34'	81°14'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Trincomalee						
North Western Province						
Puttalam						
Eluwakulama	-	-				
Monaravillu	-	-				
Sabaragamuwa Province						
Kegalle						
Rabukkana	-	-				
Ratnapura						
Udawalawe NP	6°28'	80°53'	Trop. F.	Karunaratne (1989)	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Sinharaja FR	6°24'	80°30'	Trop. F.	Zoysa & Raheem (1987)	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in tea plantation
Southern Province						
Galle						
Baddegama	6°10'	80°11'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in tea plantation
Ellakanda Estate	6°27'	80°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in scrub jungles
Hambantota						
Diulpathana	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in scrub jungles	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens and scrub jungle
Gal Wewa	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens and scrub jungle	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Runakanda FR						
Thissamaharama	6°17'	81°17'	Trop. F.	Balasubramaniam <i>et al.</i> (1990)	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Warateigoda FR	6°33'	80°21'	Trop. F.	Balasubramaniam <i>et al.</i> (1990)	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Yagirala FR	6°22'	80°10'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Uva Province						
Hunugala	6°59'	80°42'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Monaragala						
Wellawaya	6°44'	81°06'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Mus booduga* (Gray, 1837) in South Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
Western Province				
Colombo				
Bandaragama	6°42'	79°59'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Bettanwila	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in marshy areas
Dehiwala	6°51'	79°51'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Elkaduwa	7°25'	80°40'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Moratuwa	7°35'	79°50'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Kalutara				
Kalutara	6°59'	80°26'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Gampaha				
Aruggoda	6°26'	80°30'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home garden
Handurumulla	7°15'	80°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home garden
Mirigama	7°15'	80°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Mus cervicolor Hodgson, 1845

Synonyms: *Mus strophiatatus* Hodgson, 1845; *Mus fulvidiventris* Blyth, 1852?; *Mus cunicularis* Blyth, 1855; *Leggada nagarum imphalensis* Roonwal, 1948

Order: Rodentia

Family: Muridae

Common names: English: Fawn-coloured Mouse; Sinhalese:

Podi Wel-miya; Tamil: *Sit'elli*, *Sund'elli*

Taxonomic remarks: This species belongs to subgenus *Mus* Linnaeus, 1758. Ellerman (1961) lists seven subspecies, namely *Mus cervicolor phillipsi* (Wroughton, 1912), *Mus cervicolor fulvidiventris* (Blyth, 1852), *Mus cervicolor palnica* (Thomas, 1923) - presently a synonym of *Mus cookii* Ryley, 1914, *Mus cervicolor cervicolor* Hodgson, 1845, *Mus cervicolor nitidulus* (Blyth, 1859), *Mus cervicolor nagarum* Thomas, 1921 - presently a synonym of *Mus cookii* Ryley, 1914, and *Mus cervicolor imphalensis* (Roonwal, 1948). Corbet and Hill (1992) and Agrawal (2000) synonymised the last subspecies listed by Ellerman (1961) with the nominate *Mus cervicolor cervicolor* Hodgson, 1845

Habit: Nocturnal, fossorial, sometimes terrestrial

Habitat: All habitats except deserts, fields and godowns, tall grassland habitat close to rivers

Niche: Irrigated and cultivated fields

Elevation: Up to 1,000m

Distribution

Global: Cambodia, India, Laos, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam

South Asia: India, Nepal, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000; Pakistan < 20,000; Sri Lanka < 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal > 2,000; Pakistan < 2,000; Sri Lanka < 2,000]

Locations/subpopulations: 22/many, Contiguous

Habitat status: Unknown

Threats

Habitat loss or degradation due to invasive alien species (directly impacting the habitat), harvest for local consumption, natural disasters like storms and flooding

Trade: Harvested for local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, field study, museum specimens, informal sightings, literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

LEAST CONCERN in South Asia

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

West Bengal: Jaldapara WS

Recommendations

Research: Survey, life history studies

Management: Monitoring

Captive stocks: None

Comments

The Sri Lankan population accepted as *Mus cervicolor fulvidiventris* (Blyth, 1852) was treated as synonym of *Mus booduga* by Corbet & Hill (1992), but Srinivasulu & Pradhan (2003) retained it as subspecies on *Mus cervicolor* as originally attributed to due to want of taxonomic information. Phillips (1980) describes it as common in areas where it occurs. Introduced in Java and Sumatra (Indonesia).

Sources

Taber *et al.*, 1967; Phillips, 1980; Shreshta, 1997; Agrawal, 2000; Srinivasulu and Pradhan, 2003 BIS on species by: G. Maheswaran, 2003.

Compilers

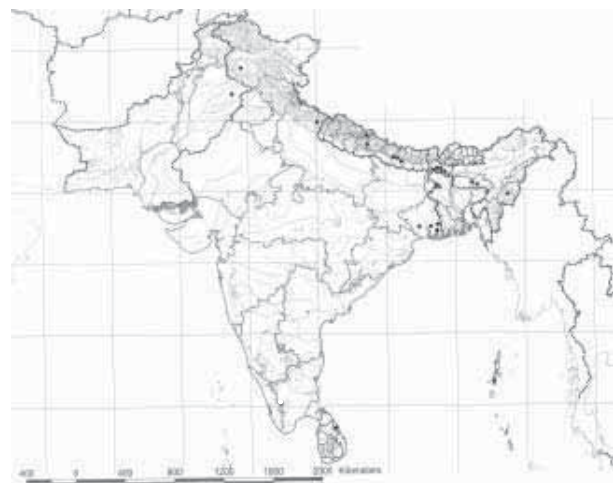
S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: T.P. Bhattacharyya

Recent Field Studies

Gopinathan, M., Jaldapara Wildlife Sanctuary, West Bengal, 2002-2003, Inventory studies

Locations from where *Mus cervicolor* Hodgson, 1845 is known in India, Nepal, Pakistan and Sri Lanka



Distribution of *Mus cervicolor* Hodgson, 1845 in South Asia (India, Nepal, Pakistan, Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andaman & Nicobar Islands									
? Location	-	-	Trop. F	Agrawal (2000)	NEPAL	27°44'	85°18'	Mon. St. F.	Shreshta (1997)
Jammu & Kashmir					Kuimbisona	-	-	Mon. St. F.	Shreshta (1997)
South Kashmir	33°44'	75°09'	Mon. St. F.	Agrawal (2000)	Central Nepal	27°45'	85°25'	Mon. St. F.	Shreshta (1997)
Islamabad					Sundarjijal	28°47'	83°42'	Mon. St. F.	Shreshta (1997)
Manipur					Syang Gompa	-	-	Mon. St. F.	Shreshta (1997)
Imphal	24°38'	93°56'	Trop. F	Agrawal (2000)	Khatmandu	-	-	Mon. St. F.	Shreshta (1997)
Imphal					Godaveri	28°14'	83°59'	Mon. St. F.	Shreshta (1997)
Meghalaya					Pokhara	31°25'	73°07'	Trop. F.	Taber et al. (1967); Srinivasulu and Pradhan (2003)
East and West Khasi hills	-	-	Trop. F	Agrawal (2000)	PAKISTAN				
Many locations					Punjab				
Uttaranchal					Faisalabad				
Almora	30°15'	79°20'	Mon. St. F.	Agrawal (2000)	Faisalabad				
Garhwal					SRI LANKA				
West Bengal					North Eastern Province				
Hugli	21°55'	88°05'	Trop. F	Agrawal (2000)	Trincomalee	8°34'	81°14'	Trop. F.	Phillips (1980); Srinivasulu and Pradhan (2003)
Hugli					Trincomalee				
Jaipalguri	25°58'	89°08'	Trop. F	Agrawal (2000)					
Bhutan Duars	to	to							
	27°45'	89°55'							
	25°58'	89°08'	Trop. F	Agrawal (2000); G Maheswaran, BIS					
	to	to							
Jaldapara WS	26°45'	89°55'	Trop. F	Agrawal (2000)					
	26°30'	88°30'	Trop. F	Agrawal (2000)					
Jaipalguri									
Medinipur	22°30'	87°30'	Trop. F	Agrawal (2000)					
Medinipur									
North and South 24 Paraganas									
Many locations	22°30'	88°40'	Trop. F	Agrawal (2000)					
West Dinajpur	25°30'	88°30'	Trop. F	Agrawal (2000)					
Many locations									

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Mus cookii Ryley, 1914

Synonyms: *Mus famulus cooki* (sic) (Ryley, 1914); *Leggada nagarum* Thomas, 1921; *Mus cervicolor nagarum* (Thomas, 1921); *Leggada palnica* Thomas, 1924; *Mus cervicolor palnica* (Thomas, 1924)

Order: Rodentia

Family: Muridae

Common names: English: Ryley's Spiny Mouse

Taxonomic remarks: This species belongs to subgenus *Mus* Linnaeus, 1758. Ellerman and Morrison-Scott (1951), and Ellerman (1961) listed *Leggada nagarum* Thomas, 1921 and *Leggada palnica* Thomas, 1924 under *Mus cervicolor* Hodgson, 1845 as *Mus cervicolor nagarum* (Thomas, 1921) and *Mus cervicolor planica* (Thomas, 1924). They treated *Mus cookii* Ryley, 1914 as the subspecies of *Mus famulus* Bonhote, 1898, mainly because a number of characters overlap. Marshall (1977b) shifted them to *Mus cookii* Ryley, 1914. Agrawal (2000) validates only two subspecies, namely *Mus cookii cookii* Ryley, 1914 and *Mus cookii nagarum* (Thomas, 1921)

Habit: Nocturnal, fossorial

Habitat: Subtropical dry deciduous forests, shola grasslands, temperate coniferous and broadleaved forests

Niche: Arable land, found near *Lantana* sp. bushes

Elevation: 100-2,500m

Distribution

Global: Bangladesh, Bhutan, China, India, Laos, Myanmar, Nepal, Thailand, Vietnam

South Asia: Bangladesh, Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bangladesh unknown; Bhutan unknown; India > 20,000; Nepal unknown]

Area of Occupancy: > 2,001 sq km [Bangladesh unknown; Bhutan unknown; India > 2,000; Nepal unknown]

Locations/subpopulations: 16/8, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% in the last 20 years and a similar trend is predicted in the next 20 years due to human induced habitat alterations

Threats

Threats not known for the species or the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimens, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: This species is widely distributed in its range

National Status (IUCN Ver. 3.0)

Bangladesh: Data Deficient

Rationale: Exact location not known

LEAST CONCERN in South Asia

Bhutan: Data Deficient

Rationale: Exact location not known

India: Least Concern

Nepal: Data Deficient

Rationale: Exact location not known

Wildlife Legislation:

Bangladesh: None

Bhutan: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

Arunachal Pradesh: Namdapha TR

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003; Pradhan and Kurup, 2001; Pradhan, 2002.

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: T.P. Bhattacharyya

Recent Field Studies

None

Locations from where *Mus cookii* Ryley, 1914 is known in Bangladesh, Bhutan, India and Nepal



Distribution of *Mus cookii* Ryley, 1914 in South Asia (Bangladesh, Bhutan, India, Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
BANGLADESH					Jaintia Hills				
Unknown	-	-	-	Srinivasulu and Pradhan (2003)	Jaintia Hills	-	-	Trop. F.	Agrawal (2000)
BHUTAN					Nagaland				
Unknown	-	-	-	Srinivasulu and Pradhan (2003)	Tuensang	26°00'	95°00'	Trop. F.	Agrawal (2000)
INDIA					Naga Hills				
Arunachal Pradesh					Tamil Nadu				
Changiang	-	-	Trop. F.	T.P. Bhattacharyya (pers. comm.); in	Dindigul	10°14'	77°29'	Trop. F.	Agrawal (2000)
Gandhigram	-	-	Trop. F.	Namdapha NP (27°23' to 27°39' N & 96°15' to 96°58' E)	Kodaikanal	10°12'	77°30'	Trop. F.	Agrawal (2000)
Lohit					West Bengal				
Mishmi Hills	28°40'	86°10'	Trop. F.	Agrawal (2000)	Darjiling	26°45'	88°15'	Trop. F.	Agrawal (2000)
Assam					Darjiling				
Golaghat	26°31'	93°58'	Trop. F.	Agrawal (2000)	NEPAL				
Barpeta					Unknown	-	-	-	Agrawal (2000)
North Kamrup	26°20'	91°15'	Trop. F.	Agrawal (2000)					
Karnataka									
Kodagu	12°25'	75°45'	Trop. F.	Agrawal (2000); Pradhan & Kurup (2001)					
Coorg				as <i>M. cervicolor</i> palnica					
Mysore									
Mysore	12°18'	76°30'	Trop. F.	Agrawal (2000)					
Maharashtra									
Pune	18°32'	73°52'	Trop. F.	Agrawal (2000)					
Poona									
Manipur									
Chandel	-	-	Trop. F.	Agrawal (2000)					
Chandel									
Meghalaya									
East and west	-	-	Trop. F.	Agrawal (2000)					
Khasi Hills									

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Mus famulus Bonhote, 1898

ENDANGERED

Synonyms: None

Order: Rodentia

Family: Muridae

Common names: English: Bonhote's Mouse

Taxonomic remarks: This species belongs to subgenus *Coelomys* Thomas, 1915. Ellerman (1961) listed three subspecies, namely *Mus famulus famulus* Bonhote, 1898, *Mus famulus cooki* (sic) (Ryley, 1914) and *Mus famulus popaeus* (Thomas, 1919). *Mus famulus cooki* (sic) (Ryley, 1914) is now considered as a separate species *Mus cookii* Ryley, 1914, and *Mus famulus popaeus* (Thomas, 1919) - earlier reported as *Leggada nitidula popaea* Thomas, 1919, has been proposed to be a subspecies of *Mus cervicolor* by Corbet and Hill (1992). Thus, presently only *Mus famulus* Bonhote, 1898 is a valid name from the region

Habit: Nocturnal, terrestrial

Habitat: Tropical and sub tropical evergreen montane forest and shola grasslands

Niche: High altitude evergreen forests

Elevation: 1,540-2,400m

Distribution

Global: Endemic to India

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 4/2, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat due to habitat loss because of human induced habitat alterations. Known from only two locations in Nilgiri Hills and Anamalais

Threats

Threats not known for the species or the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, museum specimens, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Kerala: Eravikulam NP

Tamil Nadu: Mukurthi NP

Recommendations

Research: Survey, life history, limiting factor

Management: Monitoring, captive breeding for species recovery

Conservation measures Needed: Research towards monitoring the habitat status, biology, ecology, population numbers, range and trend of the population; site-based actions in Protected Areas to be formulated

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003; Pradhan and Kurup, 2001; Pradhan 2002.

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: M.S. Pradhan

Recent Field Studies

Pradhan, M.S., Eravikulam NP, Kerala, 1994-1997, Faunistic survey of Eravikulam NP

Karthik Shankar, Upper Bhawani, Tamil Nadu, 1994-1996, Ecological studies of small mammals

Locations from where *Mus famulus* Bonhote, 1898 is known in India



Distribution of *Mus famulus* Bonhote, 1898 (Endemic to India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Kerala				
Thrissur	-	-	Mon.G.S	Agrawal (2000); Pradhan (2002)
Eravikulam NP				
Tamil Nadu				
Coimbatore			Trop. F.	Agrawal (2000)
Avalanchi	-	-	Trop. F.	Agrawal (2000)
Kalapatti				
Nilgiris / Nilgiri BR	11°21'	76°49'	Trop. F.	Pradhan & Kurup (2001)
Coonoor				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Mus fernandoni* (Phillips, 1932)**

ENDANGERED

Synonyms: *Leggadilla fernandoni* Phillips, 1932

Order: Rodentia

Family: Muridae

Common names: English: Ceylon Spiny Mouse; Sinhalese:

Miya, Podi-Miya; Tamil: *Sund'elli*

Taxonomic remarks: None

Habit: Nocturnal, terrestrial

Habitat: Tropical and sub tropical dry thorny scrub forest

Niche: Low country dry and intermediate zone, semi-evergreen forests and dry grasslands

Elevation: Up to 990m

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 101-5,000 sq km [Estimated 1,800 sq km; based on inference of areas available between locations currently known to have this species]

Area of Occupancy: 11-500 sq km [Estimated 500 sq km, based on the approximate estimate of areas with likely habitats for the species including the currently known areas]

Locations/subpopulations: 5/4, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% during 10 years and a similar trend is predicted for the next 10 years due to deforestation, change in forest cover and *Chena* cultivation

Threats

Increased use of pesticides in agriculture, human disturbance, presence of domestic predators

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, informal sightings, literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Sri Lanka

Southern Province: Yala NP

Recommendations

Research: Survey

Management: Habitat management, monitoring

Conservation measures: *Needed*: Research towards monitoring the habitat status, biology, ecology, population numbers, range and trend of the population; site-based actions in Protected Areas to be formulated; implementation of national-level legislative actions

Captive stocks: None

Comments

Decreasing occurrence, occupancy due to degradation of forests

Sources

Phillips, 1932; Srinivasulu and Pradhan, 2003; Phillips, 1935.

BIS on species by: W.L.D.P.T.S. de A. Goonatilake

Compilers

W.L.D.P.T.S. de A. Goonatilake, S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: W.L.D.P.T.S. de A. Goonatilake

Recent Field Studies

None

Locations from where *Mus fernandoni* (Phillips, 1932) is known in Sri Lanka



Distribution of *Mus fernandoni* (Phillips, 1932) (Endemic to Sri Lanka) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
SRI LANKA				
Central Province				
Kandy	7°06'	80°51'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
North Eastern Province				
Ampara	6°31'	81°42'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Kumana				
Southern Province				
Hambantota	-	-	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Buttawa				
Yala NP	6°25'	81°30'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Uva Province				
Monaragala	6°18'	81°24'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Galge				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Mus mayori* (Thomas, 1915)**

ENDANGERED

Synonyms: *Coelomys bicolor* Thomas, 1915; *Coelomys mayori* Thomas, 1915

Order: Rodentia

Family: Muridae

Common names: English: Mayor's Mouse; Highland Rat; Sinhalese: *Kelle-Miya, Miya*; Tamil: *Kart'elli, Yelli*

Taxonomic remarks: This species belongs to subgenus *Coelomys* Thomas, 1915. Ellerman (1961) listed two subspecies, namely *Mus mayori mayori* (Thomas, 1915) and *Mus mayori pococki* Ellerman, 1947

Habit: Nocturnal, fossorial

Habitat: Tropical and sub tropical montane, low-land evergreen forest; primary and secondary forest

Niche: Found in wet undergrowth in low country, wet and mountain wet zones, rainforests, wet patana grasslands

Elevation: 165-2,310m

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 101-5,000 sq km [Estimated 4,500 sq km, based on inference of areas available between locations currently known to have this species]

Area of Occupancy: 501-2,000 sq km [Estimated 1,100 sq km, based on the approximate estimate of areas with likely habitats for the species including the currently known areas]

Locations/subpopulations: 16/8, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% during 10 years and a similar trend is predicted for the next 10 years due to deforestation, human encroachments into forests and timber extraction

Threats

Deforestation due to expansion of farm lands, human encroachments, presence of domestic predators

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, indirect information, informal sightings; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED B1ab(ii,iii)**

Rationale: Restricted in extent of occurrence, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Sri Lanka

Central Province: Horton Plain NP

Recommendations

Research: Survey, taxonomic research

Management: Habitat management

Conservation measures Needed: Research towards monitoring the habitat status, biology, ecology, population numbers, range and trend of the population; site-based actions in protected areas to be formulated; implementation of national-level legislative actions

Captive stocks: None

Comments

None

Sources

Phillips, 1980; Srinivasulu and Pradhan, 2003; Phillips, 1935; Ranasinghe and Senaratne, 1994; Balasubramaniam *et al.*, 1990; Zoysa and Raheem, 1987. BIS on species by: W.L.D.P.T.S. de A. Goonatilake, D. Wickramasinghe

Compilers

W.L.D.P.T.S. de A. Goonatilake, S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: W.L.D.P.T.S. de A. Goonatilake

Recent Field Studies

Sri Lanka

Balasubramaniam *et al.*, Morapitiya, Runakanda, Kalutara District, Western Province, 1990

Ranasinghe and Senaratne, Horton Plains National Park, Nuwara Eliya District, Central Province, 1994

Zoysa and Raheem, Sinharaja FR, Ratnapura District, Sabaragamuwa, 1987

Locations from where *Mus mayori* (Thomas, 1915) is known in Sri Lanka



Distribution of *Mus mayori* (Thomas, 1915) (Endemic to Sri Lanka) from literature and recent field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
SRI LANKA									
Central Province									
Matale	7°24'	80°48'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; near river stream in montane forest, cardamom plantation. Threats include deforestation	Runakanda	-	-	Trop. F.	include deforestation Balasubramaniam <i>et al.</i> (1990). Threats include deforestation.
Musakelle Estate	-	-	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS; in Gamaduwa (7°34' N & 80°42' E)	Kalawana	7°10'	79°58'	Trop. F.	D. Wickramasinghe, BIS. Threats include habitat loss
Nuwara Eliya Horton Plains NP	6°49'	80°48'	Trop. F.	Ranasinghe and Senaratne (1994); W.L.D.P.T.S. de A. Goonatilake, BIS. Montane forest, wet patana grassland. Threats include forest fire	Sinhharaja FR	6°24'	80°30'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Nuwara Eliya	6°58'	80°56'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Kudawa	-	-	Trop. F.	Zoysa and Raheem (1987). In Sinhharaja FR (6°24' N & 80°30' E)
Pittipola	6°51'	80°50'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
North Western Province									
Udugama	7°24'	79°59'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Southern Province									
Galle									
Kottawa	6°06'	80°18'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Uva Province									
Badulla	6°47'	80°57'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Haputale									
Ohiya	6°49'	80°50'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Western Province									
Colombo									
Labugama	6°51'	80°10'	Trop. F.	D. Wickramasinghe, BIS. Threats include habitat loss					
Kalutara									
Morapitiya	6°32'	80°16'	Trop. F.	Balasubramaniam <i>et al.</i> (1990). Threats					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Mus musculus Linnaeus, 1758

LEAST CONCERN in South Asia

Synonyms: *Mus nipalensis* (*nom. nud.*) Hodgson, 1841; *Mus manei* Gray, 1843 *Mus dubius* Hodgson, 1845; *Mus humorus* Hodgson, 1845; *Mus urbanus* Hodgson, 1845; *Mus bactrianus* Blyth, 1846; *Mus darjilingensis* Hodgson, 1849; *Mus manei* Kelaart, 1852; *Mus gerbillinus* Blyth, 1853?; *Mus theobaldi* Blyth, 1853; *Mus tytleri* Blyth, 1859; *Mus musculus pygmaeus* Biswas & Khajuria, 1955; *Mus musculus khumbuensis* Biswas & Khajuria, 1968

Order: Rodentia

Family: Muridae

Common names: English: House Mouse; Marathi: *Chota Undir*; Nepalese: Dhuhure Musa; Sinhalese: *Kossattu Miya*; Tamil: *Sundeli*, *Veetu Sundeli*; Telugu: *Chitti eluka*;

Taxonomic remarks: This species belongs to subgenus *Mus* Linnaeus, 1758. Ellerman (1961) listed six subspecies, namely *Mus musculus bactrianus* (Blyth, 1846), *Mus musculus humorus* (Hodgson, 1845), *Mus musculus castaneus* (Waterhouse, 1843), *Mus musculus urbanus* (Hodgson, 1845), *Mus musculus tytleri* (Blyth, 1859), and *Mus musculus pygmaeus* Biswas & Khajuria, 1955. Agrawal (2000) listed three subspecies, namely *Mus musculus praetextus* (Brants, 1827), *Mus musculus humorus* (Hodgson, 1845), and *Mus musculus castaneus* (Waterhouse, 1843). It is also possible that *Mus musculus domesticus* (Rutty, 1772) too may be spreading in the region through transportation. There is a potentially very confusing situation regarding *Mus domesticus* Schwarz & Schwarz, 1943 which is generally regarded as the species occupying the western part of the Palearctic range. If this species occurs in Asia presumably it is introduced. However, the subspecies *praetextus* is attributed to this species (*Mus domesticus* Schwarz & Schwarz, 1943), therefore its presence in Asia is confusing! (Mike Jordan, *pers. comm.*)

Habit: Nocturnal, fossorial

Habitat: Temperate forest; tropical dry deciduous forests, subtropical dry deciduous forests; tropical evergreen forest, subtropical evergreen forest [In Sri Lanka]; scrublands; grasslands; arid and semi-arid regions; cold desert; arable land; pastureland; urban areas

Niche: Ruderal, scrub and forested tracts

Elevation: Up to 3,000m

Distribution

Global: Throughout the world

South Asia: Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bangladesh > 20,000; Bhutan > 20,000; India > 20,000; Nepal > 20,000; Pakistan > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh > 2,000; Bhutan > 2,000; India > 2,000; Nepal > 2,000; Pakistan > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: Many/many, Contiguous

Habitat status: Quantitative and qualitative increase due to increase in human habitations and creation of suitable microhabitats

Threats

Habitat loss and degradation due to infrastructure development; accidental mortality due to poisoning, pest control activities, excessive use of pesticides, habitat alteration, natural disasters in the form of drought, fire, interspecific competition

Trade: Harvested for local consumption purposes

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: This species is abundant throughout its range and is considered a pest

Data source

Indirect information, field study, museum specimens, Informal sightings, literature; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bangladesh: Least Concern

Bhutan: Least Concern

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation:

Bangladesh: None

Bhutan: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunsagar Srisailem TR, Nelapattu BS, Pocharam WS, Pranahita WS, Pulicat BS, Siwaram WS, Sri Venkateshwara NP

Rajasthan: Desert NP **Kerala:** Eravikulam NP

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Johnson *et al.* (1980); Kankane, 2004; Phillips, 1932; Roberts, 1997; Shrestha, 1997; Srinivasulu, and Pradhan 2003. BIS on species by : Visa, A., C. Srinivasulu and Bhargavi Srinivasulu; D. Wickramasinghe; K. Mukta Bai; P. Neelanarayanan; P. Padmanabhan; P.O. Nameer and M.M. Animon; W.A.M.K. Weerasinghe; W.L.D.P.T.S. de A. Goonatilake

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, T.P. Bhattacharyya, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal; Khan, 1982; Sarker and Sarker, 1988, Chakraborty *et al.*, 2004; Srinivasulu *et al.*, 2004; Chakraborty and Agrawal, 2000.

Reviewers: Rest of the participants

Recent Field Studies

Bangladesh

Afroza Begum, Fatulla, Narayangunj and Curzon Hall, Dacca University, 1990-1991, Breeding biology and growth of House Mouse (*Mus musculus*)

India

C. Srinivasulu and Bhargavi Srinivasulu, Many localities in Andhra Pradesh, 1996 onwards

C. Srinivasulu, Nagarjunasagar Srisailem Tiger Reserve, 1996 onwards, Biodiversity of Nagarjunasagar Srisailem Tiger Reserve, Andhra Pradesh

C. Srinivasulu, Kasu Brahmananda Reddy National Park, 2002 onwards, Faunal inventorying of Kasu Brahmananda Reddy National Park, Andhra Pradesh

C. Srinivasulu and Bhargavi Srinivasulu, Kurnool Grasslands, Ranga Reddy, Hyderabad and Secunderabad environs, Nagarjunasagar Srisailem Tiger Reserve, 2002 onwards, Non Volant small mammals of select areas of Andhra Pradesh

Mukta Bai, K. and Yashoda, L., Mysore city environs, 1995-1997, Karnataka Easa, P. *et al.*, throughout Kerala, 1993-1998, Survey of small mammals

Visa, A., P.O. Nameer and M.M. Animon, LRS

Thiruvazhamkunnu, Palakkad District, Diversity and abundance of rodents and insectivores in KAU campus, Palakkad and Thrissur

Pakistan

Anwar Maan, M., Khannewal, Changa Manga Forest, 1990-1993, Small mammal studies, Pakistan

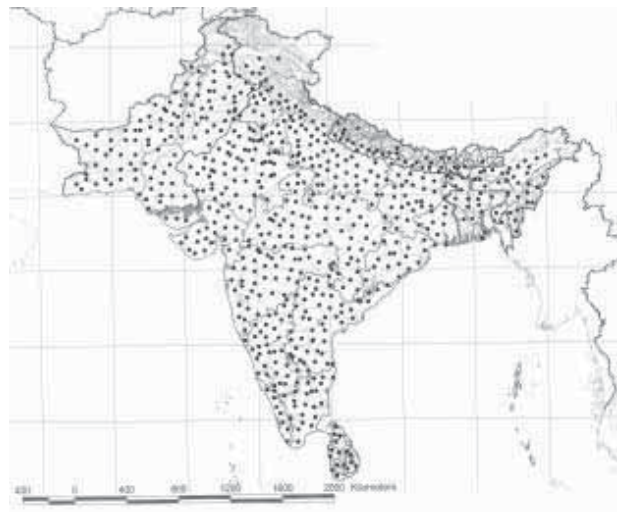
Sri Lanka

Karunaratne, Pilipota, Balangoda, Ratnapura district, 1992

Samayawardene, L.A. and W.A.M.K. Weerasinghe, Kekanadura forest, Matara, Southern Province, Sri Lanka, 2001-2002, Studies on population ecology, population distribution, species-resource relationships of myomorphs in Kekanadura forest reserve, Matara

Wickaramasinghe, D., Colombo and Tanapura Districts, 2000 onwards

Locations from where *Mus musculus* Linnaeus, 1758 is known in Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka



Distribution of *Mus musculus* Linnaeus, 1758 in South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH Many localities	-	-	Comm.	Khan (1982); Sarker & Sarker (1988); S.U. Sarker (pers. comm.); very common found throughout the country	Macherla Tiger Valley	16°29'	79°26'	Comm. Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS Chakraborty <i>et al.</i> (2004)
BHUTAN Many localities	-	-	Comm.	S. Chakraborty (pers. comm.); S.S. Saha (pers. comm.)	Hyderabad Kasu Brahmananda Reddy NP	17°15' 17°22'	78°28' 78°28'	Comm. Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS Srinivasulu <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
INDIA Andhra Pradesh Adilabad Chennur	-	-	Comm.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Karimnagar Manthani	18°39'	79°40'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Indhanpally	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS near Utnoor (19°22' N & 78°46' E)	Kurnool Pecheruvu	15°58'	78°49'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes in Nagarjunasagar Srisaillam TR
Jannaram	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS near Utnoor (19°22' N & 78°46' E)	Sunnipenta	16°03'	78°54'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Kadem	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS near Utnoor (19°22' N & 78°46' E)	Veligode	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes; South of Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Nirmal Utnoor	19°06' 19°22'	78°21' 78°46'	Comm. Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Chittoor									
Chandragiri Hill	13°35'	79°19'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Mamandur	13°44'	79°29'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahbubnagar Amrabad	16°28' 16°17'	78°50' 78°41'	Comm. Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS
Talakona	-	-	Comm.	Chakraborty <i>et al.</i> (2004); c. 114 km North of Chittoor (13°25' N & 79°00' E)	Mannanur	16°22'	78°46'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah									
Koduru	13°58'	79°21'	Comm.	Chakraborty <i>et al.</i> (2004); in Balapalli	Medak	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Medak (17°45' N & 78°15' E)
Palakonda Hills Range	18°36'	83°45'	Comm.	Chakraborty <i>et al.</i> (2004); in Balapalli	Medak Sangareddy	17°45' 17°37'	78°15' 78°05'	Comm. Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS; also near Manjira Barrage in Manjira WS
East Godavari Addatigala	17°29'	82°01'	Comm.	Chakraborty <i>et al.</i> (2004); c. 78 km NE of Rajamundry					
Kakinada	16°56'	82°13'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nalgonda Devarakonda	16°42'	78°56'	Comm.	C. Srinivasulu (pers. comm.)
Metlapalem	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Kakinada (16°56' N & 82°13' E)	Nagarjunasagar Vijayapuri	16°30'	79°13'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS
Guntur									
Guntur	16°25'	80°15'	Comm.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nellore Doravarisatram	13°49'	79°57'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Mus musculus* Linnaeus, 1758 in South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Gudur	14°08'	79°59'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kutch	22°35'	70°00'	Comm.	S. Chakraborty (pers. comm.)
Nelapattu	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Doravarisatram (13°49' N & 79°57' E)	Kutch	-	-	-	-
Sulurpet	13°42'	80°01'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Junagadh	21°15'	70°20'	Comm.	S. Chakraborty (pers. comm.)
Tada	13°35'	80°02'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Junagadh	21°10'	70°36'	Comm.	Chakraborty & Agrawal (2000)
Prakasam	-	-	-	-	Sasangir	-	-	-	-
Cumbum	15°34'	79°07'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rajkot	25°44'	75°35'	Comm.	Chakraborty & Agrawal (2000)
Diguvametta	15°23'	78°53'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwara WS	Rajkot	22°37'	70°56'	Comm.	S. Chakraborty (pers. comm.)
Isukagundam	15°35'	78°49'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwara WS	Vankaner	-	-	Comm.	Agrawal (2000); throughout the state
Rangareddy	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Ambala	30°22'	76°46'	Comm.	C. Srinivasulu (pers. comm.)
Anatagiri	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; suburb of Hyderabad (17°15' N & 78°28' E)	Ambala	-	-	-	-
Saroornagar	-	-	-	-	Hissar	29°10'	75°45'	Comm.	C. Srinivasulu (pers. comm.)
Visakhapatnam	18°20'	82°52'	Comm.	Agrawal (2000)	Hissar	-	-	Comm.	Agrawal (2000); throughout the state
Araku	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Himachal Pradesh	-	-	Comm.	Agrawal (2000); throughout the state
Warnagal	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Kangra	-	-	Comm.	S. Chakraborty (pers. comm.)
Etur	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Dhamtal	32°26'	76°16'	Comm.	S. Chakraborty (pers. comm.)
Pasra	18°12'	80°10'	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kangra	-	-	Comm.	S. Chakraborty (pers. comm.)
Tadwai	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Solan	30°55'	77°07'	Comm.	S. Chakraborty (pers. comm.)
Venkatapuram	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Solan	-	-	Comm.	S. Chakraborty (pers. comm.)
Jammu and Kashmir	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Jammu and Kashmir	-	-	Comm.	S. Chakraborty (pers. comm.)
Udhampur	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Udhampur	32°56'	75°08'	Comm.	S. Chakraborty (pers. comm.)
Udhampur	-	-	Comm.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Udhampur	-	-	Comm.	S. Chakraborty (pers. comm.)
Bihar	-	-	Comm.	Agrawal (2000); throughout the state	Jharkhand	-	-	Comm.	T.P. Bhattacharyya (pers. comm.)
? Locations	-	-	Comm.	Agrawal (2000); throughout the state	Hazaribagh	24°00'	80°15'	Comm.	T.P. Bhattacharyya (pers. comm.)
Gujarat	-	-	Comm.	Agrawal (2000); throughout the state	Hazaribagh	-	-	Comm.	T.P. Bhattacharyya (pers. comm.)
? Locations	-	-	Comm.	Agrawal (2000); throughout the state	Paschim Singbhum	22°34'	85°49'	Comm.	T.P. Bhattacharyya (pers. comm.)
Banaskantha	24°10'	72°26'	Comm.	Chakraborty & Agrawal (2000)	Chaibassa	-	-	Comm.	T.P. Bhattacharyya (pers. comm.)
Palanpur	-	-	-	-	-	-	-	-	-

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Mus musculus* Linnaeus, 1758 in South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Karnataka					Barmer and Jaisalmer				
? Locations	-	-	Comm. Agrawal (2000); throughout the state		Desert NP	-	-	Comm. Kankane (2004)	
? Locations	-	-	Comm. K. Mukta Bai, BIS, throughout the state		Churu	26°55'	75°12'	Comm. S. Chakraborty (pers. comm.)	
Kerala					Jhunjhunu				
? Locations	-	-	Comm. Agrawal (2000); throughout the state		Jhunjhunu	-	-	Comm. S. Chakraborty (pers. comm.)	
Thiruvazham kunn	-	-	Comm. Palakkad		Jalore	25°10'	72°15'	Comm. S. Chakraborty (pers. comm.)	
			Comm. A. Visa <i>et al.</i> , BIS		Jalore				
Madhya Pradesh					Sirohi				
? Locations	-	-	Comm. Agrawal (2000); throughout the state		Abu Road	24°29'	72°47'	Comm. S. Chakraborty (pers. comm.)	
Hoshangabad	22°45'	77°30'	Comm. C. Srinivasulu (pers. comm.)		Bisalpur	25°07'	73°10'	Comm. S. Chakraborty (pers. comm.)	
Hoshangabad					Sri Ganganagar	29°55'	73°53'	Comm. S. Chakraborty (pers. comm.)	
Maharashtra					Sri Ganganagar				
? Locations	-	-	Comm. Agrawal (2000); throughout the state		Tamil Nadu				
Chandrapur	19°57'	79°18'	Comm. M.S. Pradhan (pers. comm.)		Nagapattinam	10°46'	79°50'	Comm. P. Neelamarayanan, BIS	
Chandrapur					Nagapattinam				
Nasik	20°13'	74°05'	Comm. M.S. Pradhan (pers. comm.)		Thanjavur	10°30'	79°30'	Comm. P. Neelamarayanan, BIS	
Nasik					Thanjavur				
Pune	18°32'	73°52'	Comm. M.S. Pradhan (pers. comm.)		Trichy	-	-	Comm. P. Neelamarayanan, BIS	
Poona					Puttanampatti	-	-	Comm. P. Neelamarayanan, BIS	
Ratnagiri	17°00'	73°30'	Comm. M.S. Pradhan (pers. comm.)		Uttaranchal				
Ratnagiri					? Locations	-	-	Comm. Agrawal (2000); throughout the state	
Orissa					Uttar Pradesh				
? Locations	-	-	Comm. Agrawal (2000); throughout the state		? Locations	-	-	Comm. Agrawal (2000); throughout the state	
Punjab					Kanpur	26°30'	80°21'	Comm. S. Chakraborty (pers. comm.)	
? Locations	-	-	Comm. Agrawal (2000); throughout the state		Kanpur				
Gurdaspur	32°17'	75°39'	Comm. S. Chakraborty (pers. comm.)		Varanasi	25°20'	83°00'	Comm. S. Chakraborty (pers. comm.)	
Pathankot					Varanasi				
Ludhiana	30°53'	75°51'	Comm. S. Chakraborty (pers. comm.)		West Bengal				
Ludhiana					? Locations	-	-	Comm. Agrawal (2000); throughout the state	
Rajasthan									
? Locations	-	-	Comm. Agrawal (2000); throughout the state						

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Distribution of *Mus musculus* Linnaeus, 1758 in South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Bankura	23°15'	87°15'	Comm.	S. Chakraborty (pers. comm.)	Sabaragamuwa Province				
Bankura					Ratnapura	6°38'	80°40'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Bengal Duars					Balangoda				
Bengal Duars	25°58'	89°08'	Comm.	S. Chakraborty (pers. comm.)	Kalawana	7°10'	79°58'	Comm.	W.A.M.K. Wickramasinghe, BIS. Threats include habitat loss
		to 27°45'	to 89°55'		Pilipota	6°41'	80°45'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Hugli	21°05'	88°05'	Comm.	S. Chakraborty (pers. comm.)					
Hugli					Southern Province				
NEPAL					Matara				
? Locations	-	-	Comm.	Shreshta (1997), throughout Nepal	Kekandura RF	5°57'	80°36'	Comm.	W.A.M.K. Weerasinghe, BIS
Eastern Nepal					Ellakanda Estate	6°27'	80°07'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS; in tea plantation
Chitrae					Hambantota				
					Thissamaharama	6°17'	81°17'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Mangalbari	27°16'	87°30'	Comm.	Johnson <i>et al.</i> (1980); c. 20 km N of Dhankuta (26°59' N & 87°21'E) Johnson <i>et al.</i> (1980)					
PAKISTAN					Uva Province				
Many locations	-	-	-	Roberts (1997), throughout Pakistan; specific locations not known	Badulla				
					Namunukula	6°56'	81°07'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
SRI LANKA					Western Province				
Central Province					Colombo				
Kandy					Bellanwila Attidiya	6°50'	79°53'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS; in marshy lands
Deltota	7°12'	80°40'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS	Dehiwala	5°51'	79°51'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
Galaha	7°13'	80°40'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS	Labugama	6°51'	80°10'	Comm.	D. Wickramasinghe, BIS. Threats include habitat loss
Kandy	7°17'	80°38'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS					
Matale					Gampaha				
Gammaduwa	7°34'	80°42'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS	Aruggoda	6°26'	80°30'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home garden
Matale	7°31'	80°38'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS	Gampaha	6°59'	80°56'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
					Mirigama	7°15'	80°07'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS
North Western Province									
Puttalam									
Eluwamkulama	-	-	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS; in natural grassland					

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***Mus pahari* Thomas, 1916**

Synonyms: *Leggada jacksoniae* Thomas, 1921; *Mus pahari jacksoniae* (Thomas, 1921)

Order: Rodentia

Family: Muridae

Common names: English: Sikkim Mouse

Taxonomic remarks: This species belongs to subgenus *Coelomys* Thomas, 1915. Ellerman (1961) listed two subspecies, namely *Mus pahari pahari* Thomas, 1916 and *Mus pahari jacksoniae* (Thomas, 1921). However, Agrawal (2000) synonymised the latter with the former and validated only the nominate race

Habit: Nocturnal, semi-arboreal, terrestrial

Habitat: Temperate forests

Niche: Montane evergreen forests builds globular nests in dry grass

Elevation: Up to 2,000m

Distribution

Global: Bhutan, China, India, Laos, Myanmar, Thailand, Vietnam

South Asia: Bhutan, India

Extent of Occurrence: > 20,000 sq km [Bhutan < 20,000; India > 20,000]

Area of Occupancy: > 2,001 sq km [Bhutan < 2,000; India > 2,000]

Locations/subpopulations: 12/5, Fragmented

Habitat status: Unknown

Threats

Threats not known for this species or habitat where it occurs.

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, informal sightings; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bhutan: Least Concern

India: Least Concern

Wildlife Legislation:

Bhutan: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Mizoram: Dampa WS; Sairep RF

Recommendations

Research: Survey, life history

Management: Monitoring

LEAST CONCERN in South Asia

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Mandal *et al.*, 2000; Srinivasulu and Pradhan, 2003; Chakraborty, 1975; Corbet and Hill, 1992; Ellerman, 1961.

Compilers

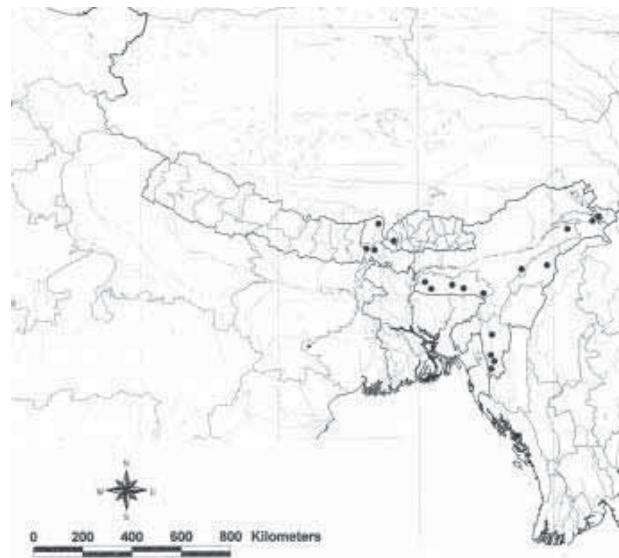
S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: T.P. Bhattacharyya

Recent Field Studies

Zoological Survey of India, Kolkata, 2000-2004, Mizoram, Faunal Inventorisation

Locations from where *Mus pahari* Thomas, 1916 is known in Bhutan and India



Distribution of *Mus pahari* Thomas, 1916 in South Asia (Bhutan and India) from literature and recent field studies

<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
BHUTAN					Sikkim				
West Bhutan	-	-	Mon.	Chakraborty (1975); Corbet and Hill (1992)	North Sikkim	27°38'	88°36'	Mon.	Agrawal (2000)
Putlibir			St. F.		Chuntang			St. F.	
INDIA					West Bengal				
Arunachal Pradesh					Darjiling				
Lohit	28°01'	96°14'	Trop. F.	Agrawal (2000); Ellerman (1961); in Mishmi Hills	Darjiling	26°45'	88°15'	Mon.	Ellerman (1961); Agrawal (2000)
Dening								St. F.	
Dreyi	28°15'	96°00'	Trop. F.	Agrawal (2000); Ellerman (1961); in Mishmi Hills	Pashok	27°04'	88°24'	Mon.	Ellerman (1961); Agrawal (2000)
Assam								St. F.	
Goleghat	26°31'	93°58'	Trop. F.	Agrawal (2000)					
Golaghat									
Tinsukhiya	27°50'	95°40'	Trop. F.	Agrawal (2000)					
Sadiya									
Meghalaya									
East and West									
Khasi Hills	25°35'	91°38'	Trop. F.	Agrawal (2000)					
Khasi Hills									
Jaintia Hills	-	-	Trop. F.	Agrawal (2000)					
Jaintia Hills									
West Garo Hills	25°31'	90°15'	Trop. F.	Ellerman (1961)					
Tura									
Mizoram									
Aizawl	23°44'	92°43'	Trop. F.	Agrawal (2000)					
Aizawl									
Lunglei	22°53'	92°44'	Trop. F.	Agrawal (2000)					
Lunglei	22°54'	92°35'	Trop. F.	Agrawal (2000)					
Sairep	-	-	Trop. F.	Agrawal (2000)					
Tuikal									
Nagaland									
Tuensang	26°15'	94°15'	Trop. F.	Agrawal (2000)					
Mokokchung									

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Mus phillipsi* Wroughton, 1912**

LEAST CONCERN

Synonyms: *Leggada siva* Thomas and Ryley, 1912; *Leggada (sic) surkha* Wroughton and Ryley, 1913

Order: Rodentia

Family: Muridae

Common names: English: Wroughton's Small Spiny Mouse

Taxonomic remarks: This species belongs to subgenus *Pyromys* Thomas, 1911. Ellerman (1961) treated it as a subspecies of *Mus cervicolor* Hodgson, 1845. Marshall (1977b) restored it to specific level as earlier. Abe (1977) reports its occurrence in Nepal, but lists it as *Mus cervicolor phillipsi* (Wroughton, 1912)

Habit: Nocturnal, terrestrial

Habitat: Tropical and sub tropical thorn scrub forest, plain grassland with sparse vegetation, rocky, semi-arid, scrub, bush, dry forest patches

Niche: Rocky areas with scrub near fields

Elevation: 500-1500m

Distribution

Global: Endemic to South Asia

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal unknown]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal unknown]

Locations/subpopulations: 12/8, Fragmented

Habitat status: Declining in area and quality

Threats

Loss of habitat, grazing, development, human interference

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, informal sightings, literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Data Deficient

Rationale: Exact location not known

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Sri Lankamalleshwara WS

Maharashtra: Melghat TR; Tadoba TR

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Abe, 1977; Agrawal, 2000; Srinivasulu and Pradhan, 2003; Chakraborty *et al.*, 2004; Verheught, 1995; Shreshta, 1997; Wroughton, 1912.

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

Zoological Survey of India, Melghat Tiger Reserve, Maharashtra, 1991-2001, Faunistic Survey
Zoological Survey of India, Tadoba Tiger Reserve, Maharashtra, 1991-2001, Faunistic Survey
Chakraborty, S., Andhra Pradesh, 1994-97, State Faunistic Survey

Locations from where *Mus phillipsi* Wroughton, 1912 is known in India and Nepal



Distribution of *Mus phillipsi* Wroughton, 1912 endemic to India and Nepal from literature and recent field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
INDIA									
Andhra Pradesh									
Anantapur	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 80 km south of Anantapur	Sirohi	25°07'	73°10'	Trop. F.	Agrawal (2000)
Kalasamudram	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 63 km south of Anantapur	Mt. Abu	24°36'	72°42'	Trop. F.	Agrawal (2000)
Muddigubba	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 63 km south of Anantapur	Tamil Nadu				
Cuddapah	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 15 km east of Cuddapah (14°25' N & 78°45' E)	Salem	12°00'	78°00'	Trop. F.	Agrawal (2000)
Bhakrapet	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 15 km east of Cuddapah (14°25' N & 78°45' E)	NEPAL				
Cuddapah	14°25'	78°45'	Trop. F.	Agrawal (2000)	Central Nepal				
Kammapalem	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 19 km east of Cuddapah (14°25' N & 78°45' E)	?locality	-	-	-	Abe (1977); Verheugt (1995); Shrestha (1997)
Palakonda Hills	18°36'	83°45'	Trop. F.	Agrawal (2000)					
Siddavattam	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 17 km east of Cuddapah (14°25' N & 78°45' E); in Sri Lankamalleshwaram WS (C. Srinivasulu, pers. comm.)					
Kurnool	15°35'	78°20'	Trop. F.	Agrawal (2000)					
Ranga Reddy	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 10km south of Anantgiri near Vikarabad					
Gutamukul	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 10km south of Anantgiri near Vikarabad					
Madhya Pradesh									
Nimar	-	-	Trop. F.	Wroughton (1912); type locality					
Asirgarh	-	-	Trop. F.	Wroughton (1912); type locality					
Maharashtra									
Berar	-	-	Trop. F.	Agrawal (2000)					
Gujarat									
Banaskantha	24°10'	72°26'	Trop. F.	Agrawal (2000)					
Palanpur	24°10'	72°26'	Trop. F.	Agrawal (2000)					
Karnataka									
Bellary	15°23'	77°14'	Trop. F.	Agrawal (2000)					
Bellary	15°23'	77°14'	Trop. F.	Agrawal (2000)					
Rajasthan									
Jalore	25°10'	72°15'	Trop. F.	Agrawal (2000)					
Jalore	25°10'	72°15'	Trop. F.	Agrawal (2000)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Mus platythrix* Bennet, 1832**

LEAST CONCERN

Synonyms: *Leggada bahadur* Wroughton & Ryley, 1913; *Leggada grahami* Ryley, 1913; *Leggada hanningtoni* Ryley, 1913

Order: Rodentia

Family: Muridae

Common names: English: Brown Spiny Mouse

Taxonomic remarks: This species belongs to subgenus *Pyromys* Thomas, 1911. Ellerman (1961) listed six subspecies, namely *Mus platythrix platythrix* Bennett, 1832, *Mus platythrix sadhu* (Wroughton, 1911), *Mus platythrix ramnadensis* (Bentham, 1908), *Mus platythrix bahadur* (Wroughton & Ryley, 1913), *Mus platythrix gurkha* (Thomas, 1914), and *Mus platythrix shortridgei* (Thomas, 1914). However, Marshall (1977b) has rearranged *Mus platythrix* complex under three species namely *Mus platythrix* Bennett, 1832, *Mus saxicola* Elliot, 1839 and *Mus shortridgei* (Thomas, 1914). The last species does not occur in South Asia. One population of *Mus platythrix* with chromosomal variation from Araku, Andhra Pradesh and Pune, Maharashtra (Agrawal, 2000)

Habit: Nocturnal, terrestrial, in some places ruderal

Habitat: Tropical and sub tropical dry deciduous, scrub forest. Found in all habitats except cold desert and northeastern states

Niche: Dry, open areas, gritty and gravelly soil, fields, synanthropic habitats, pasture lands, plantations, dry lands with pulses and oilseed cultivations

Elevation: Up to 2,000m

Distribution

Global: Endemic to India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 35/many, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% in 10 years due to deforestation

Threats

Habitat loss or degradation due to expansion of agriculture, human encroachments, pest control practices, agricultural pollution and natural calamities like fire

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Decrease in population numbers at the rate of < 20% in 10 years due to habitat loss and persecution

Data source

Indirect Information; field study; museum specimens; informal sightings; literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) LEAST CONCERN

Rationale: Widely distributed species. No major threats.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Manjira WS, Nagarjunasagar Srisailem TR, Pocharam WS, Sri Venkateshwara NP

Tamil Nadu: Mudumalai WS

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003; Srinivasulu *et al.*, 2004; Chakraborty *et al.*, 2004. BIS on species by: A. Visa, C. Srinivasulu and Bhargavi Srinivasulu, G. A. Jathar, K. Mukta Bai, K. Shenoy, P.O. Nameer and M.M. Animon

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

Meena, V., Mudumalai Wildlife Sanctuary, 1997, Community ecology of small mammals in Mudumalai Wildlife Sanctuary, South India

Ishwar Prakash, A. Saravanan and Pratap Singh, Aravalli ranges, 1993-1994, Studies on changes in the abundance in the small mammals in Aravallis

Anjali Chandrasekhar Rao and M.E. Sunquist, Southern India, Ecology of small mammals Karthik Shankar, Nilgiri Hills, Tamil Nadu, 1994-1996, Ecology of small mammals

Mukta Bai, K., L. Yashoda and M.K. Krishna Kumari, Mysore, Mandya and Naganhalli, Karnataka, 1970-1983, Rodents and their control

Srinivasulu, C. and Bhargavi Srinivasulu, Many locations in Andhra Pradesh, 1996 onwards, Status of Mammals of Andhra Pradesh

Srinivasulu, C., Nagarjunasagar Srisailem Tiger Reserve and Gundla Brahmeshwaram Wildlife Sanctuary, 1996 onwards, Biodiversity of Nagarjunasagar Srisailem Tiger Reserve and Gundla Brahmeshwaram Wildlife Sanctuary in Nallamala Hills, Eastern Ghats, Andhra Pradesh

C. Srinivasulu, Kasu Brahmananda Reddy National Park, 2002 onwards, Faunal inventorying of Kasu Brahmananda Reddy National Park (in collaboration with FBS/ZSI, Hyderabad)

Srinivasulu, C. and Bhargavi Srinivasulu, Kurnool grasslands, Ranga Reddy, Hyderabad and Secunderabad environs and Nagarjunasagar Srisailem Tiger Reserve, 2002 onwards, Non Volant small mammals of select areas of Andhra Pradesh

Jathar, A.G., Toranmal Reserve Forest, Nandurbar, Maharashtra, 2001-2003, Ecological studies on the forest owl Shomita Mukherjee, Sariska Tiger Reserve, Rajasthan, India, 1993-1995, Small carnivore Ecology

Ghosh, T.K. and T.P. Bhattacharyya, Kanha Tiger Reserve, 1991, Faunistic survey

Visa, A., P.O. Nameer and M.M. Animon, LRS Thiruvazhamkundu, Palakkad District, Kerala, February 2003, Diversity and abundance of rodents and insectivores in KAU campus, Palakkad and Thrissur

Distribution of *Mus platythrix* Bennet, 1832 (Endemic to India) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andhra Pradesh									
Adilabad	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Utloor (19°22' N & 78°46' E)	Nalgonda	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Indhanpally	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Prakasam	15°23'	78°53'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram WS
Nirmal	13°35'	79°19'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Visakhapatnam	18°20'	82°52'	Trop. F.	Agrawal (2000)
Chittoor	16°25'	80°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Araku valley	18°12'	80°10'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chandragiri Hill	17°015'	78°28'	Trop. F.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Pasra	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E) in Etunagaram WS
Guntur	17°22'	78°28'	Trop. F.	Srinivasulu <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Venkatapuram	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004). c 75 km NW of Rajamundry
Guntur	17°27'	78°27'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	West Godavari	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004). c 75 km NW of Rajamundry
Hyderabad	16°31'	80°37'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Koraturu	12°59'	77°35'	Trop. F.	K. Shenoy, BIS. Threats include stone quarrying, urbanisation
Hyderabad	15°53'	78°35'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Karnataka				
Kasu Brahmananda Reddy NP	16°03'	78°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Bangalore	12°35'	76°40'	Trop. F.	K. Mukta Bai, BIS
Secunderabad	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and Bamboo brakes; south of Rollapenta (16°03' N and 78°54' E) in Nagarjunasagar Srisaillam TR	Mysore	12°18'	76°30'	Trop. F.	K. Mukta Bai, BIS
Krishna Vijayawada	16°28'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Mysore	15°30'	75°20'	Trop. F.	Agrawal (2000)
Kurmoor	16°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Dharwar	12°25'	75°45'	Trop. F.	Agrawal (2000); Pradhan & Kurup (2001)
Atmakur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Pocharam WS; near Medak (17°45' N & 78°15' E)	Coorg	-	-	Trop. F.	A. Visa <i>et al.</i> , BIS
Sunnipenta	17°45'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Dharwar	-	-	Trop. F.	A. Visa <i>et al.</i> , BIS
Veligode	17°37'	78°05'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kodagu	-	-	Trop. F.	A. Visa <i>et al.</i> , BIS; north of Thrissur (10°31' N & 76°13' E) in Kerala Agricultural University Campus
					Kerala				
Mahubnagar					Palakkad				
Amrabad					Thiruvazhankunnu				
Mannanur					Thirissur				
Medak					Vellanikara				
Bhuthpur									
Medak									
Sangareddy									

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Mus platythrix* Bennet, 1832 (ndemic to India) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
Madhya Pradesh				
Jabalpur	23°06'	80°05'	Trop. F.	Agrawal (2000)
Jabalpur				
Maharashtra				
Dhule	20°54'	74°47'	Trop. F.	Agrawal (2000)
Dhule				
Nandurbar				
Toranmal RF	21°47'	74°28'	Trop. F.	G.A. Jathar, BIS; in Satpura Range. Threats include lopping, grazing, forest fire, expansion of agriculture
Pune				
Poona	18°32'	73°52'	Trop. F.	Agrawal (2000)
Rajasthan				
Sirohi				
Mount Abu	24°36'	72°42'	D.	Agrawal (2000)
Tamil Nadu				
Nilgiris				
Nilgiri Hills	11°24'	76°42'	Trop. F.	Agrawal (2000)
West Bengal				
Puruliya				
Puruliya	23°20'	86°25'	Trop. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Mus platythrix* Bennet, 1832 is known in India



***Mus saxicola* Elliot, 1839**

LEAST CONCERN

Synonyms: *Mus spinulosus* Blyth, 1854; *Mus (Leggada) ramnadensis* Bentham, 1908; *Mus platythrix ramnadensis* (Bentham, 1908); *Leggada platythrix sadhu* Wroughton, 1911; *Mus platythrix sadhu* (Wroughton, 1911); *Leggada cindrella* Wroughton, 1912; *Leggadilla gurkha* Thomas, 1914; *Mus platythrix gurkha* (Thomas, 1914)

Order: Rodentia

Family: Muridae

Common names: English: Brown Spiny Mouse

Taxonomic remarks: This species belongs to subgenus *Pyromys* Thomas, 1911. Ellerman (1961) included the forms under *Mus platythrix* Bennett, 1832. See comments under *Mus platythrix* Bennett, 1832. Agrawal (2000) listed three subspecies, namely *Mus saxicola saxicola* Elliot, 1839, *Mus saxicola sadhu* (Wroughton, 1911), and *Mus saxicola gurkha* (Thomas, 1914)

Habit: Nocturnal, fossorial/terrestrial

Habitat: Tropical and sub tropical dry deciduous, scrub forest. Found in all habitats, except cold desert

Niche: Sandy, gravelly, rocky habitat, semi-arid, grassland, dry cultivation, scrub, range land sparse vegetation, intensive agriculture, plain grassland, thorn scrub desert

Elevation: Up to 1,000m

Distribution

Global: Endemic to South Asia

South Asia: India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal not known; Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal not known; Pakistan > 2,000]

Locations/subpopulations: 35/many, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat due to change in land use pattern

Threats

Threats not known for the species or the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, informal sightings, indirect information, museum specimens; literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Data Deficient

Rationale: Exact location not known

Pakistan: Least Concern

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Roberts, 1997; Srinivasulu and Pradhan, 2003; Chakraborty *et al.*, 2004. BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu, P. Padmanabhan

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

India

Srinivasulu, C. and Bhargavi Srinivasulu, Many locations in Andhra Pradesh, 1996 onwards, Status of Mammals of Andhra Pradesh

Locations from where *Mus saxicola* Elliot, 1839 is known in India, Nepal and Pakistan



Distribution of *Mus saxicola* Elliot, 1839 (Endemic to India, Nepal and Pakistan) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andhra Pradesh									
Anatapur	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 69 km south of Anantapur (14°33' N & 77°25' E)	Kangra	-	-	Mon.	Agrawal (2000)
Bukkapatnam	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 69 km south of Anantapur (14°33' N & 77°25' E)	Dharmtal	32°26'	76°16'	Mon.	Agrawal (2000)
Malakavamala	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 65 km south of Anantapur (14°33' N & 77°25' E)	Kangra	32°26'	76°16'	Mon.	Agrawal (2000)
Muddagubba	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 69 km south of Anantapur (14°33' N & 77°25' E)	Hazaribagh	24°00'	80°15'	Mon.	Agrawal (2000)
Nalamada	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 20 km east of Hindupur (13°49' N & 77°29' E)	Hazaribagh	24°00'	80°15'	St. F.	Agrawal (2000)
Pathikuntapalli	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 20 km east of Hindupur (13°49' N & 77°29' E)					
Chittoor	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 104 km north of Chittoor (13°25' N & 79°00' E)	Giridih	23°58'	86°08'	Mon.	Agrawal (2000)
Nerabylu	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 114 km north of Chittoor (13°25' N & 79°00' E)	Parasnath	23°58'	86°08'	St. F.	Agrawal (2000)
Talakona	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); c. 114 km north of Chittoor (13°25' N & 79°00' E)					
Tirupati	13°39'	79°25'	Trop. F.	Chakraborty <i>et al.</i> (2004)	Karnataka				
Cuddapah	-	-	Trop. F.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu BIS	Dharwar	15°30'	75°20'	Trop. F.	Agrawal (2000)
Balapalli Hills	-	-	Trop. F.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu BIS	Dharwar	15°30'	75°20'	Trop. F.	Agrawal (2000)
Kurnool	15°35'	78°20'	Trop. F.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS.	Mysore	12°18'	76°30'	Trop. F.	Agrawal (2000)
Kurnool	15°35'	78°20'	Trop. F.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS.	Mysore	12°18'	76°30'	Trop. F.	Agrawal (2000)
Gujarat					Madhya Pradesh				
Banaskantha	24°10'	72°26'	Trop. F.	Agrawal (2000)	Malwa	24°00'	76°00'	Trop. F.	Agrawal (2000)
Palanpur	24°10'	72°26'	Trop. F.	Agrawal (2000)	Malwa	24°00'	76°00'	Trop. F.	Agrawal (2000)
Kutch	22°35'	70°00'	Trop. F.	Agrawal (2000)	Gwalior	26°12'	78°12'	Trop. F.	Agrawal (2000)
Kutch	22°35'	70°00'	Trop. F.	Agrawal (2000)	Gwalior	26°12'	78°12'	Trop. F.	Agrawal (2000)
Junagadh	21°15'	70°20'	Trop. F.	Agrawal (2000)	Maharashtra				
Junagadh	21°15'	70°20'	Trop. F.	Agrawal (2000)	Nasik	20°13'	74°05'	Trop. F.	Agrawal (2000)
Rajkot	22°37'	70°56'	Trop. F.	Agrawal (2000)	Nasik	20°13'	74°05'	Trop. F.	Agrawal (2000)
Vankaner	22°59'	71°28'	Trop. F.	Agrawal (2000)	Pune	18°32'	73°52'	Trop. F.	Agrawal (2000)
Surendranagar	22°59'	71°28'	Trop. F.	Agrawal (2000)	Poona	18°32'	73°52'	Trop. F.	Agrawal (2000)
Dhrangadhra	22°59'	71°28'	Trop. F.	Agrawal (2000)	Raigarh	18°43'	73°23'	Trop. F.	Agrawal (2000)
					Khandala	18°43'	73°23'	Trop. F.	Agrawal (2000)
					Ratnagiri	17°00'	73°30'	Trop. F.	Agrawal (2000)
					Ratnagiri	17°00'	73°30'	Trop. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Mus saxicola* Elliot, 1839 (Endemic to India, Nepal and Pakistan) from literature and recent field studies ... Contd.

Distribution in
South Asia

Tamil Nadu

Chennai
Chennai

Madurai
Madurai

Salem
Salem

Uttaranchal

?Almora
Kumaon

West Bengal

Bankura
Bankura

Birbhum
Birbhum

Medinipur
Medinipur

Puruliya
Puruliya

NEPAL

Southern Nepal
? locality

PAKISTAN

Baluchistan

Lasbelas
Lasbelas

Sind

Dadu
Dadu

Kirthar Range
Rani Kot Fort

Thatta
Thatta environs

Lat. Long. Habitat Notes / Sources

13°05' 80°17' Trop. F. Agrawal (2000)

9°56' 78°07' Trop. F. Agrawal (2000)

12°00' 78°00' Trop. F. Agrawal (2000)

29°50' 79°30' Mon. St. F. Agrawal (2000)

23°15' 87°15' Trop. F. Agrawal (2000)

24°00' 87°35' Trop. F. Agrawal (2000)

22°30' 87°30' Trop. F. Agrawal (2000)

23°20' 86°25' Trop. F. Agrawal (2000)

- - Srinivasulu & Pradhan (2003)

25°45' 66°35' Semi D. Roberts (1997)

- - Trop. F. Roberts (1997)

25°44' 67°10' Semi D. Roberts (1997)

25°55' 67°52' Semi D. Roberts (1997)

24°45' 67°56' D. Roberts (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Nesokia indica (Gray and Hardwicke, 1832)

LEAST CONCERN in South Asia

Synonyms: *Arvicola indica* Gray & Hardwicke, 1832; *Mus hardwickei* Gray, 1837; *Mus huttoni* Blyth, 1846; *Nesokia griffithi* Horsfield, 1851?; *Spalacomys indicus* Peters, 1860; *Nesokia beaba* Wroughton, 1908

Order: Rodentia

Family: Muridae

Common names: English: Short-tailed Bandicoot Rat

Taxonomic remarks: Ellerman (1961) included two subspecies, namely *Nesokia indica indica* (Gray & Hardwicke, 1832), and *Nesokia indica huttoni* (Blyth, 1846). The latter form is distributed from Afghanistan and westward. Corbet and Hill (1992) opine that *Nesokia indica chitralensis* Schlitter and Setzer, 1976 could not be a discrete subspecies. Agrawal (2000) reported only the nominate subspecies from India. Musser and Carleton (1993) cite that substantial morphological variation is present among geographic samples and that careful systematic revision is required to determine whether this variation represents one or more species

Habit: Nocturnal, fossorial

Habitat: Tropical and subtropical dry deciduous forests, scrublands, grasslands, arable land, pastures, plantations

Niche: Prefers soft, moist soil for burrows, natural grasslands, cultivated fields, orchards

Elevation: Up to 1,600m

Distribution

Global: Afghanistan, Bangladesh, China, Egypt, India, Iran, Iraq, Israel, Nepal, Pakistan, Saudi Arabia, Syria, Kazakhstan, Turkmenistan, Uzbekistan

South Asia: Bangladesh, India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [Bangladesh <100; India > 20,000; Nepal > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001sq km [Bangladesh <100; India > 2,000; Nepal > 2,000; Pakistan > 2,000]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat due to irrigation canals

Threats

Habitat loss and degradation due to irrigation canals leading to change in native species directly impacting the habitat

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bangladesh Vulnerable ↓ Near Threatened D2

Rationale: This taxon is restricted in distribution and is known from a single location (AoO < 100 sq km) where the habitat is declining at the rate of < 20% in the last 10 years due to human encroachment

India: Least Concern
Nepal: Least Concern
Pakistan: Least Concern

Wildlife Legislation:

Bangladesh: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

In places where irrigation has been extended threat to this species exists

Sources

Agrawal, 2000; Ghosal, 1973; Roberts, 1997; Shreshta, 1997; Srinivasulu and Pradhan, 2003 BIS on species by: Hassan *et al.*

Compilers

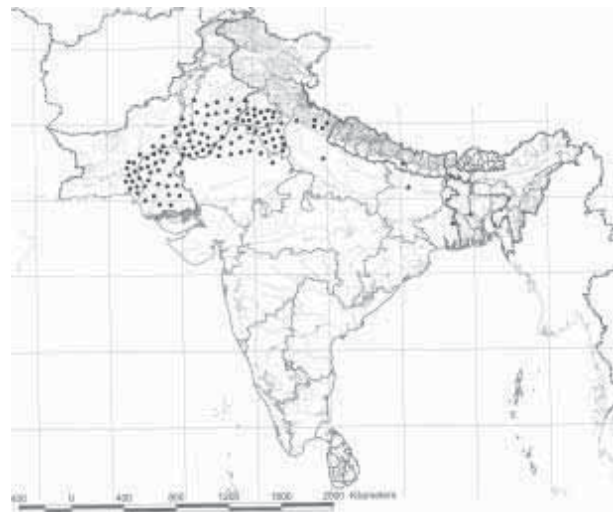
S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Nesokia indica* (Gray and Hardwicke, 1832) is known in Bangladesh, India, Nepal and Pakistan



Distribution of *Nesokia indica* (Gray and Hardwicke, 1832) in South Asia (Bangladesh, India, Nepal and Pakistan) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH					Central Nepal				
Dacca	30°16'	90°52'	Trop. F.	Hassan <i>et al.</i> , BIS; north of Dacca	? Location	-	-	Mon. St. F.	Ghosal (1973)
Savar									
INDIA					PAKISTAN				
Bihar					Baluchistan				
Vaishali	25°45'	85°25'	Trop. F.	Agrawal (2000)	? Locations	-	-	Semi D.	Roberts (1997); many localities along the valleys
Vaishali									
Delhi					Punjab				
Delhi	-	-	Trop F.	Agrawal (2000); in many locations	? Locations	-	-	Semi D.	Roberts (1997); many localities along the valleys
Haryana					Sind				
? Locations	-	-	Temp. F.	Agrawal (2000); in many locations	? Locations	-	-	Semi D.	Roberts (1997); many localities along the valleys
Punjab									
? Locations	-	-	Temp. F.	Agrawal (2000); in many locations					
Rajasthan									
Jaipur	27°00'	76°00'	Semi D.	Agrawal (2000)					
Jaipur									
Sri Ganganagar	29°55'	73°53'	Semi D.	Agrawal (2000)					
Sri Ganganagar									
Uttaranchal									
? Locations	-	-	Trop. F.	Agrawal (2000); in many locations					
Nainital									
Ramnagar	-	-	Trop. F.	Agrawal (2000)					
Uttar Pradesh									
Fatehgarh	-	-	Trop. F.	Agrawal (2000)					
West Bengal									
Nadia	23°15'	88°30'	Trop F.	Agrawal (2000)					
Nadia									
NEPAL									
? Locations	-	-	Mon. St. F.	Shreshta (1997); throughout Nepal in many locations					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Niviventer brahma* (Thomas, 1914)**

VULNERABLE in South Asia

Synonyms: *Epimys brahma* Thomas, 1914; *Rattus fulvescens brahma* (Thomas, 1914)

Order: Rodentia

Family: Muridae

Common names: English: Thomas' Chestnut Rat

Taxonomic remarks: Ellerman & Morrison-Scott (1951), and Ellerman (1961) treated this as a subspecies under *Rattus fulvescens* (Gray, 1847), but Musser (1970) restored it to the specific level under the genus *Niviventer* Marshall, 1977 and commented that the species is represented by only a few specimens

Habit: Nocturnal, fossorial

Habitat: Tropical forests, temperate forests, montane moist deciduous forests

Niche: Found in moist deciduous forests

Elevation: ~1,815m

Distribution

Global: India, Myanmar

South Asia: India

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 3/1, Unknown

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% in the last 20 years and a similar trend in the next 10 years due to change in land use pattern

Threats

Habitat loss and degradation due to natural disasters in the form of avalanches and landslides, shifting agriculture, presence and competition with alien species, harvesting for subsistence

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, museum specimens, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED** ↓

VULNERABLE in South Asia B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, life history

Management: Monitoring

Conservation measures: Needed: Research towards understanding the biology, ecology, habitat status of the species; to monitor the numbers, range, trends of the population and the threats to the species and its habitat; taxonomic research, formulate site based actions in Protected Areas

Captive stocks: None

Comments

Extremely restricted in distribution. Seven specimens have been collected from Anzong valley and Namdapha National Park, Arunachal Pradesh. This species is hunted for food

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

S.S. Saha, Namdapha National Park, Arunachal Pradesh, India, 1980 onwards, Faunal inventerisation

Locations from where *Niviventer brahma* (Thomas, 1914) is known in India



Distribution of *Niviventer brahma* (Thomas, 1914) in South Asia (India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changliang	-	-		Temp. F. S.S., Saha (pers. comm.); in Namdapha TR (27°23' to 27°39' N & 96°15' to 96°50' E)
Gandhigram				
Lohit				
Anzong Valley	28°00'	96°30'		Temp. F. Agrawal (2000), in Mishmi Hills

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Niviventer eha (Wroughton, 1916)

Synonyms: *Epimys eha* Wroughton, 1916; *Rattus eha* (Wroughton, 1916); *Rattus eha eha* (Wroughton, 1916)

Order: Rodentia

Family: Muridae

Common names: English: Little Himalayan Rat

Taxonomic remarks: Ellerman (1961) included this species under genus *Rattus* and listed two subspecies, namely *Rattus eha eha* (Wroughton, 1916) and *Rattus eha ninus* (Thomas, 1922). According to Agrawal (2000), the nominate species occurs in South Asia

Habit: Nocturnal, fossorial

Habitat: Temperate forests, montane forests.

Niche: Coniferous and rhododendron forests and bamboo shrubs

Elevation: 2,250-3,700m

Distribution

Global: China, India, Myanmar, Nepal

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal > 2,000]

Locations/subpopulations: 8/5, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat due to habitat loss

Threats

Hunting for subsistence use

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimens, informal sightings, literature; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: This species is widely distributed throughout its range in India and Nepal

National Status (IUCN Ver. 3.0)

India: **Least Concern**

Nepal: **Least Concern**

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Monitoring

LEAST CONCERN in South Asia

Captive stocks: None

Comments

Widely occurring species but with very little information available

Sources

Abe, 1971; Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

Joya Thapa, Sikkim, Yumthang, India, 2003, Community structure of mammals in Teesta River Basin

Locations from where *Niviventer eha* (Wroughton, 1916) is known in India and Nepal



Distribution of *Niviventer eha* (Wroughton, 1916) in South Asia (India and Nepal) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang	27°23'	96°15'	Temp. F.	S.S. Saha (pers. comm.); 10 km from
Namdapha NP	to 27°39'	to 96°58'	Gandhinagar.	Subtropical/ temperate ecotone. Threats include forest clearing, landslides
West Bengal				
Darjiling	-	-	Temp. F.	Agrawal (2000); near Ghoom (27°01' N & 88°16' E), c. 2,250m
Palmajua				
Sandakphu	-	-	Temp. F.	Agrawal (2000); c. 3,600m
Sikkim				
North Sikkim				
Lachen	27°44'	88°33'	Temp. F.	Agrawal (2000); c. 2,682m
Thangu	-	-	Temp. F.	Agrawal (2000); c. 3,408m
Yumthang	27°50'	88°42'	Temp. F.	Agrawal (2000); c. 3,475m
NEPAL				
Central Nepal				
Ghora Pani	-	-	Temp. F.	Abe (1971)
Syang Gompa	28°47'	83°42'	Temp. F.	Abe (1971)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Niviventer fulvescens (Gray, 1847)

LEAST CONCERN in South Asia

Synonyms: *Mus fulvescens* Gray, 1847; *Rattus fulvescens* (Gray, 1847); *Mus caudator* Hodgson, 1849; *Leggada jerdoni* Blyth, 1863; *Mus octomammis* Gray, 1863

Order: Rodentia

Family: Muridae

Common names: English: Chestnut Rat

Taxonomic remarks: Ellerman (1961) treated this under genus *Rattus* (*Maxomys*) Fischer, 1803, and listed two subspecies, namely *Rattus fulvescens brahma* (Thomas, 1914) and *Rattus fulvescens fulvescens* (Gray, 1847). Niethammer and Martens (1975) considered *fulvescens* as a synonym of *niviventer*.

Agrawal (2000) mentioned that there are no valid subspecies under *Niviventer fulvescens* (Gray, 1847) from Indian region

Habit: Nocturnal, fossorial/terrestrial

Habitat: Tropical evergreen, temperate broadleaf, grass and bushy land, riverbeds in hilly forest

Niche: Evergreen broadleaved forests, shrubs, rocks, also found near water

Elevation: 180-2,682m

Distribution

Global: China, India, Indonesia, Malaysia, Nepal, Pakistan

South Asia: India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000; Pakistan not known]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal > 2,000; Pakistan not known]

Locations/subpopulations: 18/8, Fragmented

Habitat status: Decline in area and quality

Threats

Habitat loss, jhuming, fragmentation, encroachments

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, literature; estimated; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: This species is widely distributed in its range

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Pakistan: Data Deficient

Rationale: Exact location not known

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

Pakistan: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history

Management: Monitoring

Captive stocks: None

Comments

Srinivasulu and Pradhan (2003) opine that this taxon may also occur in Bangladesh and Bhutan

Sources

Agrawal, 2000; Corbet and Hill, 1992; Shreshta, 1997; Srinivasulu and Pradhan, 2003

Compilers

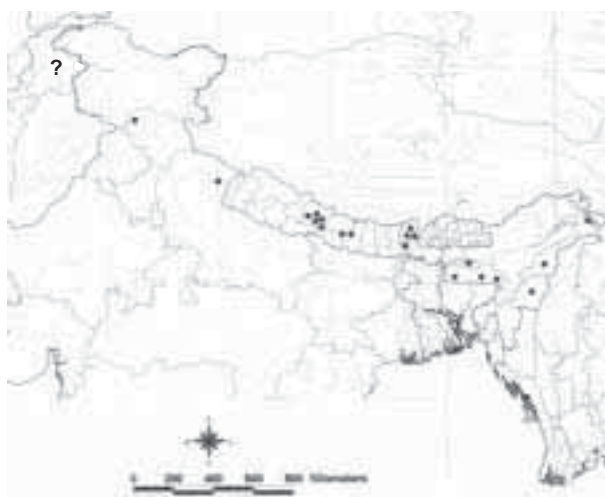
S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants.

Recent Field Studies

None

Locations from where *Niviventer fulvescens* (Gray, 1847) is known in India, Nepal, Pakistan



Distribution of *Niviventer fulvescens* (Gray, 1847) in South Asia (India, Nepal and Pakistan) from literature and field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
INDIA									
Arunachal Pradesh									
Lohit									
Mishmi Hills	28°40'	96°10'	Temp. F. Agrawal (2000);	c. 685-1,567m	NEPAL				
Assam					Baglung	28°25'	83°10'	Mon. St. F.	Shreshta (1997)
Kamrup					Myagdi	28°35'	83°20'	Mon. St. F.	Shreshta (1997)
Kamrup	26°20'	91°15'	Trop. F. Agrawal (2000);	c. 182m	Gulmi	28°05'	83°20'	Mon. St. F.	Shreshta (1997)
Himachal Pradesh					Parbat	28°25'	83°40'	Mon. St. F.	Shreshta (1997)
Chamba					Lamjung	28°15'	84°25'	Mon. St. F.	Shreshta (1997)
Chamba	32°34'	76°08'	Mon. St. F.	Agrawal (2000)	Central Nepal				
Manipur					Gorkha	28°01'	84°37'	Mon. St. F.	Shreshta (1997)
Imphal									
Imphal	24°38'	93°56'	Trop. F. Agrawal (2000);	c. 1,066m	PAKISTAN				
Meghalaya					North West Frontier Province				
Garo Hills					? Location	-	-	-	Corbet and Hill (1992); Srinivasulu and Pradhan (2003)
Garo Hills	25°30'	90°30'	Trop. F. Agrawal (2000);	c. 397-427m					
Khasi Hills									
Khasi Hills	25°35'	91°38'	Trop. F. Agrawal (2000);	c. 732m					
Jaintia Hills									
Jaintia hills	-	-	Trop. F. Agrawal (2000)						
Sikkim									
Rabangla									
	-	-	Temp. F. Agrawal (2000);	c. 2,010m					
North Sikkim									
Chungthang	27°38'	88°36'	Temp. F. Agrawal (2000);	c. 1,631m					
Lachen									
Lachen	27°44'	88°33'	Temp. F. Agrawal (2000);	c. 2,682m					
Uttaranchal									
?Almora									
Kumaon	29°50'	79°30'	Temp. F. Agrawal (2000);	c. 2,316m					
West Bengal									
Darjiling									
Darjiling	26°45'	88°15'	Mon. St. F.	Agrawal (2000);	c. 1,066-2,286m				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Niviventer langbianis (Robinson and Kloss, 1922)

ENDANGERED in South Asia

Synonyms: *Rattus langbianis* Robinson & Kloss, 1922; *Rattus cremoriventer lanbianis* (Robinson & Kloss, 1922); *Rattus indosinicus* Osgood, 1932; *Rattus cremoriventer indosinicus* (Osgood, 1932)

Order: Rodentia

Family: Muridae

Common names: English: Dark-tailed Rat

Taxonomic remarks: Ellerman (1961) treated this under *Rattus cremoriventer* (Miller, 1900). Musser (1981) treated *Rattus langbianis* Robinson & Kloss, 1922 as a full species being distinct from *Rattus cremoriventer* (Miller, 1900) and assigned it to the genus *Niviventer* Marshall, 1977, and further, also synonymised *Rattus indosinicus* Osgood, 1932 with *Niviventer langbianis* (Robinson & Kloss, 1922). Agrawal (2000) synonymised *Rattus cremoriventer indosinicus* (Osgood, 1932) with this species and opines that there are no subspecies for this taxon

Habit: Nocturnal, fossorial

Habitat: Tropical evergreen forest, temperate forest, primary and secondary forest

Niche: Evergreen forests

Elevation: Up to 2,800m

Distribution

Global: India, Lao PDR, Myanmar, Thailand, Vietnam

South Asia: India

Extent of Occurrence: < 100 sq km

Area of Occupancy: < 10 sq km

Locations/subpopulations: 1/1

Habitat status: Declining in area and quality

Threats

Loss of habitat, fragmentation, encroachment, jhuming, fire

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **CRITICALLY**

ENDANGERED ↓ **ENDANGERED B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, single location with major threats affecting habitat area and quality in the South Asian region.

However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history studies

Management: Monitoring

Captive stocks: None

Comments

Trade in this species might be there but compilers are not sure about it. Found from only one locality in India. May occur in other areas around

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Location from where *Niviventer langbianis* (Robinson and Kloss, 1922) is known in India



Distribution of *Niviventer langbianis* (Robinson and Kloss, 1922) in South Asia (India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Assam

Margherita 27°17' 95°41' Temp. F. Agrawal (2000); c. 60m

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Niviventer niviventer (Hodgson, 1836)

Synonyms: *Mus (Rattus) niviventer* Hodgson, 1836; *Mus niveiventer* Blanford, 1891; *Epimys lepcha* Wroughton, 1916; *Rattus niviventer lepcha* (Wroughton, 1916)

Order: Rodentia

Family: Muridae

Common names: English: Himalayan White-bellied Rat

Taxonomic remarks: Ellerman (1961) treated this under subgenus *Maxomys* Sody, 1936, and listed four subspecies, namely *Rattus niviventer niviventer* (Hodgson, 1836), *Rattus niviventer lepcha* (Wroughton, 1916), *Rattus niviventer bukit* (Bonhote, 1903), and *Rattus niviventer mentosus* (Thomas, 1916). Ghose (1964) proposed a subspecies *Rattus niviventer monticola* that Agrawal (2000) synonymised with *Niviventer niviventer lepcha* (Wroughton, 1916), one of the two subspecies occurring in South Asia

Habit: Nocturnal, fossorial

Habitat: Temperate coniferous, temperate broad leaved forest, tropical evergreen, subtropical dense evergreen and riverine forests in vicinity of streams

Niche: Riverine, forests

Elevation: Up to 3,600m

Distribution

Global: Bhutan, India, Myanmar, Nepal

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan < 20,000; India > 20,000; Nepal unknown]

Area of Occupancy: > 2,001 sq km [Bhutan < 2,000; India > 2,000; Nepal unknown]

Locations/subpopulations: 15/11, Fragmented

Habitat status: Declining in area and quality

Threats

Loss of habitat, fragmentation, fires, jhuming, encroachments

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimens, informal sightings, literature; observed, inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: This species is widely distributed in its range

National Status (IUCN Ver. 3.0)

Bhutan: Least Concern

India: Least Concern

Nepal: Data Deficient

Rationale: Exact location not known

Wildlife Legislation:

Bhutan: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

Nepal: None

CITES: Not listed

LEAST CONCERN in South Asia

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Monitoring

Conservation measures: *Needed:* Research to monitor numbers and trend of the population of this species

Captive stocks: None

Comments

None

Sources

Abe, 1971; Agrawal, 2000; Chakraborty, 1975; Ellerman, 1961; Mandal *et al.*, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

Joya Thapa, Chunthang, Sikkim, India, 2003, Community structure of mammals in Teesta River Basin ZSI, North eastern India, prior to 1990, general state fauna survey

Locations from where *Niviventer niviventer* (Hodgson, 1836) is known in Bhutan, India and Nepal



Distribution of *Niviventer niviventer* (Hodgson, 1836) in South Asia (Bhutan, India and Nepal) from literature and recent field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
BHUTAN					West Bengal				
Susuna	-	-	Temp. F. Agrawal (2000)		Darjiling	26°45'	88°15'	Temp. F. Agrawal (2000); c. 2,250-3,600m	
INDIA					NEPAL				
Arunachal Pradesh					Central Nepal				
Lohit					? Location	-	-	Mon. St. F.	Abe (1971)
Mishmi Hills	28°40'	96°10'	Trop. F. Agrawal (2000); c. 685-1,567m						
Assam									
Tinsukia									
Sadiya	27°50'	95°40'	Trop. F. Agrawal (2000)						
Manipur									
Imphal									
Imphal	24°38'	93°56'	Trop. F. Agrawal (2000)						
Chandel									
Chandel	-	-	Trop. F. Agrawal (2000)						
Meghalaya									
Jaintia Hills									
Jaintia Hills	-	-	Trop. F. Agrawal (2000); c. 1,219-1,371m						
Mizoram									
Chimtuipui									
Ngengpui	-	-	Trop. F. Agrawal (2000); Mandal <i>et al.</i> (2000)						
Nagaland									
Tuensang									
Mokokchung	26°15'	94°15'	Trop. F. Agrawal (2000); in Naga Hills						
Sikkim									
Bakhim	-	-	Temp. F. Agrawal (2000); c. 2,743m						
North Sikkim									
Chungthang	27°38'	88°36'	Temp. F. Agrawal (2000); c. 1,630m						
Lachen									
Lachen	27°44'	88°33'	Temp. F. Agrawal (2000); c. 2,682m						
Uttaranchal									
?Almora									
Kumaon	29°50'	79°30'	Temp. F. Agrawal (2000); c. 1,828-2,743m						

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Niviventer tenaster (Thomas, 1916)

Synonyms: *Epimys tenaster* Thomas, 1916; *Rattus cremoriventer tenaster* (Thomas, 1916)

Order: Rodentia

Family: Muridae

Common names: English: Tennesserim Long-tailed Rat

Taxonomic remarks: Ellerman (1961) treated this as a subspecies under *Rattus cremoriventer* (Miller, 1900), while Musser (1973) treated it as a form of *Rattus niviventer* (Hodgson, 1836) but later (Musser, 1981) considered it to be either a southern montane outlier of *Niviventer confucianus* (Milne-Edwards, 1872) or a distinct species. Agrawal (2000) does not list this species. Confusion about the status of this species still exists. Not listed by Agrawal (2000). Single record from Assam, India

Habit: Unknown

Habitat: Unknown

Niche: Unknown

Elevation: Unknown

Distribution

Global: India, Myanmar, Vietnam

South Asia: India

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: Unknown

Habitat status: Unknown

Threats

Threats not known for the species or the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; subjective; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **DATA DEFICIENT in South Asia**

Rationale: Exact location not known

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, genetic research, taxonomic research, life history, limiting factor research

Management: Monitoring

Captive stocks: None

Comments

The occurrence of this species in Assam in India is based on Musser and Carleton (1993) as quoted by Srinivasulu and

DATA DEFICIENT in South Asia

Pradhan (2003). In Myanmar it is found in the altitude between 1,650-1,980m

Sources

Musser & Carleton, 1993; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Niviventer tenaster* (Thomas, 1916) is known in India



Distribution of *Niviventer tenaster* (Thomas, 1916) in South Asia (India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Assam

? locality - - - Musser and Carleton (1993); Srinivasulu and Pradhan (2003)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus burrus* (Miller, 1902)**

ENDANGERED

Synonyms: *Mus burrescens* Miller, 1902; *Mus burrus* Miller, 1902; *Mus burrus* Miller, 1902

Order: Rodentia

Family: Muridae

Common names: English: Miller's Nicobar Rat

Taxonomic remarks: Ellerman (1961) treated this species along with *Rattus burrus* (Miller, 1902) and *Rattus burrescens* (Miller, 1902) as conspecific. Corbet and Hill (1992) synonymised all the three species under *Rattus tiomanicus* (Miller, 1900) with doubtful status, and further commented that the "inclusion of the forms on the Andaman Islands is tentative, although the three forms described from there, *burrus*, *burrus* and *burrescens*, are very similar to each other and probably conspecific". Agrawal (2000) remarks this being close to *Rattus rattus* (Linnaeus, 1758) and also mentions that the recent study by Musser and Heaney (1985) shows its affinity to *Rattus tiomanicus* (Miller, 1900)

Habit: Not known

Habitat: Tropical evergreen forests, semi-evergreen forests, subtropical forests

Niche: Unknown

Elevation: Unknown

Distribution

Global: Endemic to India

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 3/3, Fragmented

Habitat status: Decline in quality of habitat and area

Threats

Tsunami

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum records, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research, limiting factor, research, epidemiology

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

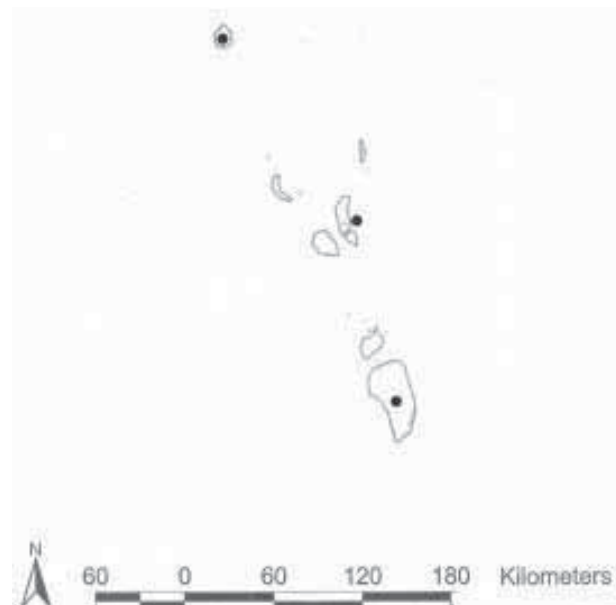
S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Rattus burrus* (Miller, 1902) is known in India



Distribution of *Rattus burrus* (Miller, 1902) (Endemic to India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Andaman & Nicobar Islands

Car Nicobar Island	9°10'	92°47'	Trop. F	Agrawal (2000)
Great Nicobar Island	7°00'	93°50'	Trop. F	Agrawal (2000)
Trinkut Nicobar Island	8°05'	93°30'	Trop. F	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus exulans* (Peale, 1848)**

Synonyms: *Mus concolor* Blyth, 1859; *Mus exulans* Peale, 1848

Order: Rodentia

Family: Muridae

Common names: English: Polynesian Rat

Taxonomic remarks: Ellerman (1961) included this species under subgenus *Rattus* Fischer, 1803 and mentions about the *Rattus exulans concolor* (Blyth, 1859) from Myanmar region. Corbet and Hill (1992), and Musser and Carleton (1993) include Bangladesh in its distribution range in South Asia. This species does not occur in Indian limits (Agrawal, 2000)

Habit: Nocturnal, probably commensal

Habitat: Tropical and subtropical dry deciduous forests, tropical and subtropical mangrove forests. Coastal hilly forest with human settlements in lowlands

Niche: Hilly forests

Elevation: Sea level to 250m

Distribution

Global: Australia (not on mainland), Bangladesh, Cambodia, Indonesia, Lao PDR, New Guinea, New Zealand, Malaysia, Micronesia, Myanmar, Polynesia, Thailand

South Asia: Bangladesh

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: Unknown/unknown

[Exact location not traced. Srinivasulu and Pradhan (2003) and Musser and Carleton (1993) include East Bangladesh in its range]

Habitat status: Unknown

Threats

Unknown

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **DATA DEFICIENT in South Asia**

Rationale: No information exists about this species except occurrence notes

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Monitoring

DATA DEFICIENT in South Asia

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Musser and Carleton, 1993; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Rattus exulans* (Peale, 1848) is known in Bangladesh



Distribution of *Rattus exulans* (Peale, 1848) in South Asia (Bangladesh) from literature and recent field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

BANGLADESH

East

Bangladesh

? Location - - - Musser and Carleton (1993); Srinivasulu and Pradhan (2003)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus montanus* Phillips, 1932**

ENDANGERED

Synonyms: None

Order: Rodentia

Family: Muridae

Common names: English: Nillu Rat, Nellu Rat, Sri Lankan Mountain Rat; Tamil: *Kart' elli*, *Yelli*; Sinhalese: *Kelle-Miya*, *Miya*

Taxonomic remarks: Ellerman (1961) included this species under subgenus *Rattus* Fischer, 1803. Corbet and Hill (1992) remark that "it has been suggested that this name might be based upon a 'sample of extremely large *Rattus rattus kelaarti* males' (McKay, 1984) but the teeth are very distinctive and preclude that possibility, a conclusion supported by Musser (1986)". Phillips (1980) gives a detailed account of this species

Habit: Diurnal/crepuscular, terrestrial

Habitat: Tropical and subtropical evergreen montane forest

Niche: Montane rainforests

Elevation: 1,320-2,310m

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 101-5,000 sq km [Estimated 1,100]

Area of Occupancy: 11-500 sq km [Estimated 400]

Locations/subpopulations: 4/2, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% due to habitat loss and clearing of forests for plantations

Threats

Habitat loss and degradation due to expansion of agriculture, clear-cutting of forests

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, informal sightings, literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Sri Lanka

Central Province: Horton Plains NP, Knuckles FR

Recommendations

Research: Survey, life history studies

Management: Habitat management, monitoring

Conservation measures Needed: Formulation and implementation of action plans at the national level. Research towards monitoring the habitat status, biology, ecology, population numbers, range and trend of the population; site-based actions in Protected Areas to be formulated

Captive stocks: None

Comments

The BIS of D. Wickramasinghe included Kalawana, Ratnapura District, Sabaragamuwa Province for this species. W.L.D.P.T.S. de A. Goonatilake (*pers. comm.*) opines that this location is questionable as this species is restricted to montane region

Sources

Phillips, 1980; Srinivasulu and Pradhan, 2003 BIS on species by: D. Wickramasinghe, W.L.D.P.T.S. de A. Goonatilake

Compilers

W.L.D.P.T.S. de A. Goonatilake, S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: W.L.D.P.T.S. de A. Goonatilake

Recent Field Studies

Sri Lanka D. Wickramasinghe, Matale, Ratnapura, 2000 onwards

Locations from where *Rattus montanus* Phillips, 1932 is known in Sri Lanka



Distribution of *Rattus montanus* Phillips, 1932 (Endemic to Sri Lanka) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
SRI LANKA				
Central Province				
Matale	7°24'	80°48'	Trop. F.	D. Wickramasinghe, BIS. Threats include habitat loss
Nuwara Eliya	6°49'	80°48'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Nuwara Eliya	6°58'	80°56'	Trop. F.	Phillips (1935); Nalinda (1990); W.L.D.P.T.S. de A. Goonatilake, BIS; Wet grasslands, montane forest. Threats include forest fire
Uva Province				
Badulla	6°49'	80°50'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Ohiya				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus nitidus* (Hodgson, 1845)**

Synonyms: *Mus nitidus* Hodgson, 1845; *Mus horeites* Hodgson, 1845; *Mus pycctoris* Hodgson, 1845; *Mus aequicaudalis* Hodgson, 1849; *Mus guhai* Nath, 1952

Order: Rodentia

Family: Muridae

Common names: English: Himalayan Rat

Taxonomic remarks: Ellerman (1961) included this species under subgenus *Rattus* Fischer, 1803, and listed two subspecies, namely *Rattus nitidus nitidus* (Hodgson, 1845) and *Rattus nitidus obsoletus* Hinton, 1919. Corbet and Hill (1992) retained *Rattus nitidus obsoletus* Hinton, 1919, while Agrawal (2000) synonymised it with *Rattus nitidus nitidus* (Hodgson, 1845) based on overlap of characters. Marshall (1977a) synonymised *Mus guhai* Nath (1952) with this species as the description of *Mus guhai* Nath (1952) was based upon a litter of *Rattus nitidus* (Hodgson, 1845)

Habit: Nocturnal, arboreal, sometimes ruderal

Habitat: Temperate broad leaved forest, tropical montane forest and human settlements

Niche: Montane forest

Elevation: 686-2,740m

Distribution

Global: Bangladesh, Bhutan, China, India, Myanmar, Nepal, Thailand, Vietnam

South Asia: Bangladesh, Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bangladesh not known; Bhutan < 20,000; India > 20,000; Nepal > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh not known; Bhutan < 2,000; India > 2,000; Nepal > 2,000]

Locations/subpopulations: 25/many; Fragmented

Habitat status: Quantitative and qualitative decrease in habitat due to human induced habitat changes

Threats

Habitat loss and degradation due to shifting agriculture, small-scale logging, natural disasters, hunting for local consumption

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum records, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: This species is widely distributed in its range

National Status (IUCN Ver. 3.0)

Bangladesh: Data Deficient

Exact location not known

Bhutan: Least Concern

India: Least Concern

Nepal: Least Concern

Wildlife Legislation:

Bangladesh: None

Bhutan: None

LEAST CONCERN in South Asia

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history studies

Management: Monitoring

Captive stocks: None

Comments

Trade of this species might occur but compilers are not sure about the same

Sources

Agrawal, 2000; Chakraborty, 1975; Ellerman, 1961; Mandal *et al.*, 2000; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Rattus nitidus* (Hodgson, 1845) is known in Bangladesh, Bhutan, India and Nepal



Distribution of *Rattus nitidus* (Hodgson, 1845) in South Asia (Bangladesh, Bhutan, India and Nepal) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH ? Location	-	-	-	Srinivasulu and Pradhan (2003)	Mizoram Bhungtlang	-	-	Trop. F.	Agrawal (2000)
BHUTAN East Bhutan Mithangar	-	-	-	Chakraborty (1975)	Aizawl Aizawl	23°44'	92°43'	Trop. F.	Agrawal (2000)
INDIA Arunachal Pradesh Changlang Namdapha NP	27°23' to 27°39'	96°15' to 96°58'	Trop. F.	Agrawal (2000)	Chimtuipui Ngengpui Zobawk	-	-	Trop. F. Trop. F.	Mandal <i>et al.</i> (2000) Mandal <i>et al.</i> (2000)
Lohit Mishmi Hills	-	-	Mon. St. F.	Agrawal (2000)	Lunglei Lunglei	22°53'	92°44'	Trop. F.	Agrawal (2000)
Assam Golaghat Golaghat	26°31'	93°58'	Trop. F.	Agrawal (2000)	Tripura Ganganagar	-	-	Trop. F.	Agrawal (2000)
Tinsukhiya Sadiya	27°05'	95°40'	Trop. F.	Agrawal (2000)	Sikkim East Sikkim Gangtok	27°20'	88°37'	Mon. St. F.	Agrawal (2000)
Manipur Imphal Imphal	24°38'	93°56'	Trop. F.	Agrawal (2000)	Uttaranchal ?Almora Kumaon	29°50'	79°30'	Mon. St. F.	Agrawal (2000)
Tamenglong Tamenglong	24°58'	93°33'	Trop. F.	Agrawal (2000)	West Bengal Darjiling Darjiling	26°45'	88°15'	Mon. St. F.	Ellerman (1961); Agrawal (2000)
Senapati Senapati	-	-	Trop. F.	Agrawal (2000)	Pashok	27°04'	88°24'	Mon. St. F.	Ellerman (1961)
Meghalaya East and West Khasi Hills Khasi Hills	25°35'	91°38'	Trop. F.	Agrawal (2000)	Ghoom	27°01'	88°16'	Mon. St. F.	Ellerman (1961)
Jaintia Hills Jaintia Hills	-	-	Trop. F.	Agrawal (2000)	NEPAL Changoo	-	-	Mon. St. F.	Ellerman (1961)
Garo Hills Garo Hills	25°30'	90°30'	Trop. F.	Agrawal (2000)	Ramche	-	-	Mon. St. F.	Ellerman (1961)
					Central Nepal Godavari	27°40'	85°21'	Mon. St. F.	Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Rattus nitidus* (Hodgson, 1845) in South Asia (Bangladesh, Bhutan, India and Nepal) from literature and field studies ... Contd.

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Kathmandu	27°45'	85°25'	Mon. St. F.	Ellerman (1961)
Nagarkot	27°42'	85°31'	Mon. St. F.	Ellerman (1961)
Thankot	27°41'	85°11'	Mon. St. F.	Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus norvegicus* (Berkenhout, 1769)**

Synonyms: *Mus decumanoides* (*nom. nud.*) Hodgson, 1814;
Mus norvegicus Berkenhout, 1769

Order: Rodentia

Family: Muridae

Common names: English: Norway Rat

Taxonomic remarks: Ellerman (1961) included this species under subgenus *Rattus* Fischer, 1803. Ellerman (1961), Spillet (1968), Phillips (1980), Pradhan (1975), Corbet and Hill (1992), and Agrawal (2000) opine that this species has been introduced by human agencies through transportation, and it is restricted to large cities only. The species is ground dwelling in habit

Habit: Nocturnal, fossorial

Habitat: Tropical and subtropical dry deciduous forests, rocky shores in coastal areas, including rocky offshore islands and sea cliffs, coastal sand, shingle and pebble shores, terrestrial and urban areas. Found in forest areas as well as coastal zones, settlements, tropical rainforest, mixed forest, pine forest and highly disturbed forest areas

Niche: Lives in burrows near human habitation

Elevation: Unknown

Distribution

Global: Introduced throughout the world

South Asia: Introduced in India, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: Many/many, Fragmented

Habitat status: Unknown

Threats

Pest control practices and presence of predators

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, informal sightings, literature; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) NOT EVALUATED in South Asia

Rationale: This species is widely distributed and introduced

National Status (IUCN Ver. 3.0)

India: Not Evaluated

Pakistan: Not Evaluated

Sri Lanka: Not Evaluated

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history studies, epidemiology

NOT EVALUATED in South Asia

Management: Monitoring

Captive stocks: None

Comments

Introduced species well established in port cities and some cities within mainland. Considered as a pest species

Sources

Agrawal, 2000; Phillips, 1932; Roberts, 1997; Srinivasulu and Pradhan, 2003; BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu, D. Wickramasinghe, P. Padmanabhan, W.A.M.K. Weerasinghe, W.L.D.P.T.S. de A. Goonatilake

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

India:

C. Srinivasulu and Bhargavi Srinivasulu, Many localities in Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh

Sri Lanka:

Samayawardena, L. A. and Weerasinghe, W.A.M.K., Kekanadura Forest, Matale district, Sri Lanka, 2001-2002
Wickramasinghe, D., Ratnapura, Colombo, Gampaha Districts, 2000 Onwards

Locations from where *Rattus norvegicus* (Berkenhout, 1769) is known in India, Pakistan and Sri Lanka



Distribution of *Rattus norvegicus* (Berkenhout, 1769) in South Asia (India, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andhra Pradesh									
East Godavari	-	-	Comm.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Galle	6°03'	80°12'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Kakinada					Galle				
Krishna					Matara				
Machilipatnam	-	-	Comm.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Matara	5°56'	80°32'	Comm.	W.A.M.K. Weerasinghe, BIS
Vijayawada	-	-	Comm.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Western Province				
Visakhapatnam	-	-	Comm.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Colombo	6°50'	79°53'	Comm.	W.L.D.P.T.S. de A. Goonatilake, BIS; in marshy areas
Visakhapatnam	-	-	Comm.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Attidiya	6°55'	80°11'	Comm.	D. Wickramasinghe, BIS
					Colombo	6°55'	79°50'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
					Labugama	6°51'	80°10'	Comm.	D. Wickramasinghe, BIS
Maharashtra					Gampaha				
Mumbai	18°58'	72°49'	Comm.	Agrawal (2000)	Gampaha	6°59'	80°56'	Comm.	D. Wickramasinghe, BIS
Mumbai									
Tamil Nadu									
Chennai	13°05'	80°17'	Comm.	Agrawal (2000)					
Chennai									
West Bengal									
Kolkata	22°32'	88°25'	Comm.	Agrawal (2000)					
Kolkata									
PAKISTAN									
Baluchistan									
Pasni	25°15'	63°28'	Comm.	Roberts (1997); on Mekran Coast					
Punjab									
Lahore city	31°031'	74°24'	Comm.	Roberts (1997)					
Sind									
Karachi	24°52'	67°03'	Comm.	Roberts (1997), in Karachi Port					
SRI LANKA									
North Eastern Province									
Trincomalee	8°34'	81°14'	Comm.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus palmarum* (Zelebor, 1869)**

CRITICALLY ENDANGERED

Synonyms: *Mus palmarum* Zelebor, 1869

Order: Rodentia

Family: Muridae

Common names: English: Zelebor's Nicobar Rat, Palm Rat

Taxonomic remarks: Corbet and Hill (1992), Musser and Carleton (1993) and Agrawal (2000) following Musser and Heaney (1985), and Musser and Newcomb (1983) remark that it is most closely related to *Rattus tiomanicus* (Miller, 1900). It is known from only very few specimens in the original series

Habit: Nocturnal, arboreal

Habitat: Tropical evergreen forests, mangrove areas

Niche: Thick jungles with palm, prefers crowns of palm trees

Elevation: 50-150m

Distribution

Global: Endemic to India

Extent of Occurrence: < 100 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 1/1

Habitat status: Declining in area and quality

Threats

Competition from alien species, Tsunami

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Informal sightings, indirect information, literature, museum specimens; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **CRITICALLY ENDANGERED**

B1ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, single location with major threats affecting habitat area and quality.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history, limiting factor studies, research, epidemiology

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

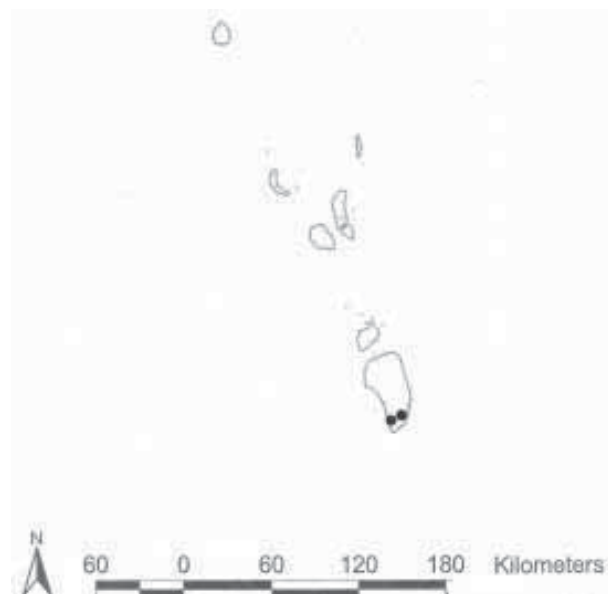
S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

Agarwal, 2000

Locations from where *Rattus palmarum* (Zelebor, 1869) is known in India



Distribution of *Rattus palmarum* (Zelevor, 1869) (Endemic to India) from literature and recent field studies

Distribution in
South Asia

Lat. Long.

Habitat Notes / Sources

INDIA

Andaman & Nicobar Islands

Great Nicobar 7°00' 93°50' Trop. F Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus ranjinae* Agrawal and Ghosh, 1969**

ENDANGERED

Synonyms: None

Order: Rodentia

Family: Muridae

Common names: English: Ranjini's Field Rat, Kerala Rat

Taxonomic remarks: Corbet and Hill (1992) opined that its inclusion as a member of subgenus *Rattus* Fischer, 1803 is open to question. This distinctive species is known from very few specimens

Habit: Nocturnal, fossorial

Habitat: Paddy fields

Niche: Arable land, waterlogged areas and inundated cultivated fields

Elevation: Up to 1,000m

Distribution

Global: Endemic to India

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 3/3, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat due to change in land use pattern

Threats

Habitat loss and natural disasters

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, informal sightings, indirect information, literature; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history studies, epidemiology

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003 BIS on species by: Easa *et al.*, (1993-1998)

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: P.O. Nameer

Recent Field Studies

Easa *et al.*, Kerala, 1993-1998, Survey of small mammals of Kerala Zoological Survey of India, Kerala, 1995, Rodent Survey

Locations from where *Rattus ranjinae* Agrawal and Ghosh, 1969 is known in India



Distribution of *Rattus ranjinae* Agrawal and Ghosh, 1969 (Endemic to India) from literature and recent field studies

Distribution in South Asia Lat. Long. Habitat Notes / Sources

INDIA

Kerala

Alleppey
Alleppey

9°29' 76°19' Padd. F. Agrawal (2000)

Thiruvananthapuram

Thiruvananthapuram 8°29' 76°55' Padd. F. Agrawal (2000)

Trichur
Trichur

10°31' 76°13' Padd. F. Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus rattus* (Linnaeus, 1758)**

LEAST CONCERN in South Asia

Synonyms: *Mus rattus* Linnaeus, 1758; *Mus indicus* Desmarest, 1832; ? *Mus asiaticus* Gray, 1837; *Mus rufescens* Gray, 1837; *Mus flavescens* Elliot, 1839; *Mus brunneus* Hodgson, 1845; *Mus ceylonus* Kelaart, 1850; *Mus kandianus* Kelaart, 1850; *Mus tetragonurus* Kelaart, 1850; *Rattus rattus ceylonus* (Kelaart, 1850); *Mus arboreus* Horsfield, 1851; *Mus nemoralis* Blyth, 1851?; *Mus crassipes* Blyth, 1859; *Mus (Leggada) andamensis* Blyth, 1860; *Rattus rattus andamensis* (Blyth, 1860); *Mus infralineatus* (nom. nud.) Blyth, 1863; *Mus kandianus* (emend.) Kelaart, 1867; *Mus atratus* Miller, 1902?; *Mus flebilis* Miller, 1902?; *Mus pulliventer* Miller, 1902; *Rattus ?rattus flebilis* (Miller, 1902); *Mus atridorsum* Miller, 1903; *Epimys kelaarti* Wroughton, 1915; *Rattus rattus girensis* Hinton, 1918

Order: Rodentia

Family: Muridae

Common names: English: Common House Rat; Hindi: *Choocha*; Marathi: *Undir*; Nepalese: *Khairo Musa*, *Himali Musa*; Telugu: *Pedda Eluka* Oriya: *Musa*

Taxonomic remarks: Ellerman (1961) included 22 subspecies under this species. Out of these *Rattus rattus alexandrinus* (Geoffroy, 1803); *Rattus rattus ceylonus* (Kelaart, 1850); and *Rattus rattus andamensis* (Blyth, 1860) have been synonymised under *Rattus rattus* (Linnaeus, 1758) by Corbet and Hill (1992). In all 15 above mentioned subspecies have been retained by Corbet and Hill (1992) on the basis of extremely generalised trend of variations and superficial sampling of the main collection. Further, Corbet and Hill (1992) doubtfully synonymised *Rattus rattus macmillani* Hinton, 1914 with *Rattus remotus* (Robinson & Kloss, 1914). *Rattus rattus rattus* (Linnaeus, 1758) [Corbet and Hill (1992) do not include this name], an European Black Rat, is a valid subspecies and has been introduced in the port cities like Mumbai, Kolkata etc. through transportation by human agencies (Pradhan and Hemkar, 1986); *Rattus rattus bullocki* Roonwal, 1948 has been retained as a subspecies by Corbet and Hill (1992), while *Rattus rattus khumbuensis* Biswas & Khajuria, 1955 has been treated as *Rattus turkestanicus khumbuensis* (Biswas & Khajuria, 1955) by Agrawal, (2000). Phillips (1980) listed five subspecies of *Rattus rattus* (Linnaeus, 1758) from Sri Lanka, of which *Rattus rattus rattus* (Linnaeus, 1758), *Rattus rattus rufescens* (Gray, 1837), and *Rattus rattus kelaarti* (Wroughton, 1915) are currently considered as valid subspecies, while *Rattus rattus alexandrinus* (Geoffroy, 1803) has been synonymised by Corbet and Hill (1992). Furthermore Corbet and Hill (1992), include a few other subspecies names from the region like, *Rattus rattus girensis* Hinton, 1918 [We synonymised this with *Rattus rattus* (Linnaeus, 1758) following Ellerman and Morrison-Scott (1951)], and ?*Rattus rattus holchu* Chaturvedi, 1966. The status of the latter subspecies needs confirmation. Corbet and Hill (1992) has been followed in this particular species while listing the above mentioned subspecies of *Rattus rattus* (Linnaeus, 1758) since Agrawal (2000) has not dealt with *Rattus rattus* (Linnaeus, 1758) at subspecies level. But, Musser and Carleton (1993), and Mike Jordan (*pers. comm.*) opine that the subspecies *wroughtoni*, *tistae*, *bhotia*, *bullocki*, *khyensis* and *tickos*, which all belong to the 2n=42 chromosome group of *Rattus rattus* (Linnaeus, 1758) are subspecies of *Rattus tanezumi* (Temminck, 1844) [also see comments under *Rattus tanezumi* (Temminck, 1844)]. However, Raman and Sharma (1977) have reported chromosome number 2n=38 or 42 in *Rattus rattus* (Linnaeus, 1758) too (Agrawal, 2000).

Remarking on the subspecies variation under *Rattus rattus* (Linnaeus, 1758), Agrawal (2000) opined that "it is not possible, at present, to correctly classify all the subspecies of *Rattus rattus*, due to lack of sufficient fresh specimen for study, of all the described subspecies from India and adjoining countries". Therefore it is clear that to understand subspecies variation of *Rattus rattus* (Linnaeus, 1758) needs thorough revisionary studies based on karyological, biochemical, morphological, osteological, genetic relationship, geographical distribution

Habit: Nocturnal, fossorial to semi-arboeal, ruderal

Habitat: Tropical dry deciduous forests, subtropical dry deciduous forests, tropical mangrove forest, subtropical mangrove forests, tropical and subtropical scrub, tropical grasslands, arable lands, urban areas, rural gardens, human settlements, found in all habitats except cold deserts

Niche: Various niches

Elevation: 0-3,500m

Distribution

Global: South Asia, China. Introduced to all parts of the world.
South Asia: Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bangladesh > 20,000; Bhutan > 20,000; India > 20,000; Nepal > 20,000; Pakistan > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh > 2,000; Bhutan > 2,000; India > 2,000; Nepal > 2,000; Pakistan > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative increase in favourable habitat due to expansion of human habitation

Threats

Pest control practices, natural calamities like fire, rise of temperature, pathogens or parasites affecting the individuals, used in research for human disease investigations, hunted for local consumption

Trade: Harvested for local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Abundant and considered as a pest

Data source

Field studies, indirect information, informal sightings, museum specimens, literature; 95% confidence; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bangladesh: Least Concern

Bhutan: Least Concern

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected AreasIndia

Andhra Pradesh: Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram WS, Kasu Brahmananda Reddy NP, Kawal WS, Manjira WS, Mahaveer Harina Vanasthali NP, Nagarjunsagar-Srisaillam TR, Nelapattu WS, Pranahita WS, Pocharam WS, Pulicat WS, Siwaram WS, Sri Venkateshwara NP

Orissa: Chandaka-Dampara WS

Pakistan

North West Frontier Province: Ayyubia NP; *Punjab*: Lal Suhanara NP; *Sind*: Kirthar NP

Recommendations

Research: Survey, taxonomic research, epidemiology

Management: Monitoring

Captive stocks: None

Comments

Trade of this species might occur in some parts of India but compilers are not sure about it

Sources

Agrawal, 2000; Chakraborty & Agrawal, 2000; Chakraborty *et al.*, 1998; Chakraborty *et al.*, 2004; de Silva, 1957; Ellerman, 1961; Kankane, 2004; Khan, 1892; Pradhan, 2002; Phillips, 1980; Roberts, 1997; Sarker & Sarker, 1988; Srinivasulu and Pradhan, 2003; Srinivasulu *et al.*, 2004; Tiwari *et al.*, 2002 BIS on species by: A. Visa *et al.*, C. Srinivasulu and Bhargavi Srinivasulu, D. Wickramasinghe, G. R. Chandrashekhar, W.A.M.K. Weerasinghe, W.L.D.P.T.S. Goonatilake

Compilers

W.L.D.P.T.S. Goonatilake, S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants.

Recent Field StudiesIndia

Srinivasulu, C. and Bhargavi Srinivasulu, throughout Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh

Visa, A., P.O. Nameer and M.M. Animon, LRS Thiruvazhamkunnu, Palakkad District, Kerala, Diversity and abundance of rodents and insectivores in KAU Campus, Palakkad and Thrissur

Sri Lanka

Wickaramsinghe, D., Gampaha and Colombo, 2000 onwards

Locations from where *Rattus rattus* (Linnaeus, 1758) is known in Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka



Distribution of *Rattus rattus* (Linnaeus, 1758) in South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH ? Locality	-	-	-	Khan (1982). Sarker and Sarker (1988), throughout the country	Chittoor Mamandur Talakona	13°25' 13°44'	79°00' 79°29'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Sri Venkateshwara WS
BHUTAN Western Bhutan Putlibir	-	-	Mon. St. F.	Chakraborty (1975). Elevation: 2,103m	Tirupati	13°39'	79°25'	Trop. F.	Chakraborty <i>et al.</i> (2004). c 114 km North of Chittoor (13°25' N & 79°00' E) Chakraborty <i>et al.</i> (2004). C. Srinivasulu & Bhargavi Srinivasulu, BIS
Simtokha	-	-	Mon. St. F.	Chakraborty (1975). Elevation: 2,408m, in Thimpu Valley	Cuddapah Koduru	13°58'	79°21'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS
Wangdu	-	-	Mon. St. F.	Chakraborty (1975). Elevation: Phodrang 1,372m, in Punakha Valley	Palakonda Hills	18°36'	83°45'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS
Central Bhutan Batase	-	-	Mon. St. F.	Chakraborty (1975). Elevation: 1,433m	Kondagorlapenta	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004). C. Srinivasulu and Bhargavi Srinivasulu, BIS; in Palakonda Hills (18°36' N & 83°45' E)
Shamgong	-	-	Mon. St. F.	Chakraborty (1975). Elevation: 1,960m	East Godavari Addatigala Kakinada Metlapalem	17°29' 16°56'	82°01' 82°13'	Trop. F. Trop. F. Trop. F.	Chakraborty <i>et al.</i> (2004). C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS near Kakinada (16°56' N & 82°13' E)
Tama	-	-	Mon. St. F.	Chakraborty (1975). Elevation: 1,130m	Guntur Guntur	16°25'	80°15'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS
INDIA Andhra Pradesh Adilabad Chennur	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Pranahita WS	Macherla	16°29'	79°26'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS
Indhanpally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Near Utnoor (19°22' N & 78°46' E); in Kawal WS	Nagarjunakonda	16°35'	80°21'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Utnoor (19°22' N & 78°46' E)	Pullareddygudem	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS
Kadern	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Utnoor (19°22' N & 78°46' E)	Hyderabad Hyderabad Kasu Brahmananda Reddy NP	17°15' 17°22'	78°28' 78°28'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS Srinivasulu <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Nirmal Utnoor	19°06' 19°22'	78°21' 78°46'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS in Kawal WS	Karimnagar Jagtial	18°48'	78°56'	Trop. F.	Chakraborty <i>et al.</i> (2004). C. Srinivasulu & Bhargavi Srinivasulu, BIS
Adilabad Anantapur Goody Kadiri	14°33' 15°07' 14°07'	77°25' 77°38' 78°10'	Trop. F. Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Manthani	18°39'	79°40'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chittoor Chandragiri Hill	13°35'	79°19'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Rattus rattus* (Linnaeus, 1758) in South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Krishna Kaikalur	16°34'	81°12'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Kolluru WS	Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Kurnool Atmakur	15°53'	78°35'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nellore	13°49'	79°57'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kotalacheruvu	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Doravarisatram	14°08'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Pecheruvu	15°58'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes; in Nagarjunasagar Srisaillam TR	Kavali	14°55'	79°59'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Sunnipenta	16°03'	78°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Nelapattu WS	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Doravarisatram (13°49' N & 79°57' E)
Veligode	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes. South of Rollapenta (15°52' N & 78°49' E); in Nagarjunasagar Srisaillam TR	Sulurpet Tada	13°42'	80°01'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Mahbubnagar Amrabad	16°28'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Prakasam Cumbum	15°34'	79°07'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Farahabad	16°17'	78°41'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Diguvametta	15°23'	78°53'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram Metta WS
Mannanur	16°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Valipalli	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Medak Dantepally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Medak (17°45' N & 78°15' E); in Pocharam WS	Rangareddy Anantagiri	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Medak Sangareddy	17°45'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; also near Manjira Barrage in Manjira WS	Nawabpet	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Anantagiri
Nalgonda Devarakonda	16°42'	78°56'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu (pers. comm.)	Rayasam Saroornagar	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)
Nagarjunasagar	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR	Tandur	19°09'	79°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; suburb of Hyderabad (17°15' N & 78°28' E)
					Visakhapatnam Araku	18°20'	82°52'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS
					Borra Caves	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS; near Araku (18°20' N & 82°52' E)
					Warangal Etur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Eturmagaram WS
					Pasra	18°12'	80°10'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS

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Distribution of *Rattus rattus* (Linnaeus, 1758) in South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Tadwai	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Sasangir	21°10'	70°36'	Trop. F.	Chakraborty and Agrawal (2000) Rajkot
Venkatapuram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Etumagaram WS	Morri	-	-	Trop. F.	Chakraborty and Agrawal (2000); in Rajkot (25°44' N & 75°35' E)
Warangal	18°00'	79°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Rajkot	25°44'	75°35'	Trop. F.	Chakraborty and Agrawal (2000)
West Godavari Koraturu	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Surat Valod	21°03'	73°16'	Trop. F.	Chakraborty and Agrawal (2000)
Bihar					Surendranagar Dhrangadhra	22°59'	71°28'	Trop. F.	Chakraborty and Agrawal (2000)
Pashchim Champaran Valmiki TR	-	-	Trop. F.	Chakraborty <i>et al.</i> (1998)	Vadodara Shankheda	-	-	Trop. F.	Chakraborty and Agrawal (2000)
Gujarat					Haryana				
Ahmedabad Dahegam	23°10'	72°49'	Trop. F.	Chakraborty and Agrawal (2000), also at Nandol	Haryana	-	-	-	Agrawal (2000); many locations in the state
Amreli Dharni	-	-	Trop. F.	Chakraborty and Agrawal (2000)	Himachal Pradesh				
Banaskantha Banaskantha Deesa	24°15'	72°10'	Trop. F.	Chakraborty and Agrawal (2000), also at Luna	Himachal Pradesh	-	-	-	Agrawal (2000); many locations in the state
Palanpur	24°10'	72°26'	Trop. F.	Chakraborty and Agrawal (2000)	Jammu and Kashmir				
Bharuch Jhagadiya	-	-	Trop. F.	Chakraborty and Agrawal (2000)	Jammu and Kashmir	-	-	-	Agrawal (2000); many locations in the state
Dangs Ahwa	20°45'	73°41'	Trop. F.	Chakraborty and Agrawal (2000), also at Nandol	Jharkhand				
Kuchchh Bhuj	23°16'	69°40'	Trop. F.	Chakraborty and Agrawal (2000), also at Adesor	Jharkhand	-	-	Trop. F.	Agrawal (2000); many locations in the state
Junagadh Junagadh	21°15'	70°20'	Trop. F.	Chakraborty and Agrawal (2000), also at Jasadn, Kishod	Hazaribagh Gajhundi	-	-	Trop. F.	Ellerman (1961)
					Karnataka				
					Karnataka	-	-	Trop. F.	Agrawal (2000); many locations in the state
					Kerala				
					Kerala	-	-	-	Agrawal (2000); many locations in the state
					Idukki Eravikulam NP	-	-	Trop. F.	Pradhan (2002)
					Palakkad Thiruvazhamkundu	-	-	Trop. F.	Visa <i>et al.</i> , BIS, in Livestock Research Station

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Distribution of *Rattus rattus* (Linnaeus, 1758) in South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Madhya Pradesh	-	-	-	Agrawal (2000); many locations in the state	West Bengal	-	-	-	Agrawal (2000); many locations in the state
Madhya Pradesh	-	-	-	Agrawal (2000); many locations in the state	West Bengal	-	-	-	Agrawal (2000); many locations in the state
Balaghat and Mandla	-	-	-	Agrawal (2000); many locations in the state	state	-	-	-	Agrawal (2000); many locations in the state
Kanha TR	-	-	-	Agrawal (2000); many locations in the state	NEPAL	-	-	-	Agrawal (2000); many locations in the state
Maharashtra	-	-	-	Agrawal (2000); many locations in the state	Eastern Nepal	-	-	-	Shrestha (1997); no exact location given
Maharashtra	-	-	-	Agrawal (2000); many locations in the state	PAKISTAN	-	-	-	Agrawal (2000); many locations in the state
Pune	-	-	-	Agrawal (2000); many locations in the state	Baluchistan	-	-	-	Roberts (1997); throughout the province
Manjri	-	-	-	Agrawal (2000); many locations in the state	Baluchistan	-	-	-	Roberts (1997); throughout the province
Pashan	-	-	-	Agrawal (2000); many locations in the state	Punjab	-	-	-	Roberts (1997); throughout the province
Orissa	-	-	-	Agrawal (2000); many locations in the state	Punjab	-	-	-	Roberts (1997); throughout the province
Orissa	-	-	-	Agrawal (2000); many locations in the state	Sind	-	-	-	Roberts (1997); throughout the province
Khurda and Cuttack	-	-	-	Agrawal (2000); many locations in the state	Sind	-	-	-	Roberts (1997); throughout the province
Ambilo	-	-	-	Agrawal (2000); many locations in the state	North West Frontier Province	-	-	-	Roberts (1997); throughout the province
Punjab	-	-	-	Agrawal (2000); many locations in the state	NWFP	-	-	-	Roberts (1997); throughout the province
Punjab	-	-	-	Agrawal (2000); many locations in the state	SRI LANKA	-	-	-	Roberts (1997); throughout the province
Rajasthan	-	-	-	Agrawal (2000); many locations in the state	Central Province	-	-	-	Roberts (1997); throughout the province
Rajasthan	-	-	-	Agrawal (2000); many locations in the state	Kandy	7°17'	80°38'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Barmer and Jaisalmer	-	-	-	Agrawal (2000); many locations in the state	Kandy	7°17'	80°38'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Desert NP	-	-	-	Agrawal (2000); many locations in the state	Kegalle	7°16'	80°22'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Tamil Nadu	-	-	-	Agrawal (2000); many locations in the state	Kegalle	7°16'	80°22'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Tamil Nadu	-	-	-	Agrawal (2000); many locations in the state	Nuwara Eliya	6°58'	80°56'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS; Many locations
Uttaranchal	-	-	-	Agrawal (2000); many locations in the state	Nuwara Eliya	6°58'	80°56'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS; Many locations
Uttaranchal	-	-	-	Agrawal (2000); many locations in the state	Ohiya	6°49'	80°50'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Uttar Pradesh	-	-	-	Agrawal (2000); many locations in the state	Pattipola	6°51'	80°50'	Trop. F.	Goonatilake, BIS
Uttar Pradesh	-	-	-	Agrawal (2000); many locations in the state	Matale	7°34'	80°42'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Kanpur	26°30'	80°21'	Trop. F.	Agrawal (2000)	Gammaduwa	7°34'	80°42'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Kanpur	26°30'	80°21'	Trop. F.	Agrawal (2000)	Matale	7°31'	80°38'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS; many locations

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Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
North Central Province				
Anuradhapura	8°20'	80°30'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations, also in Rajangane
Polonnaruwa	8°00'	81°00'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
North Eastern Province				
Batticaloa	7°45'	81°30'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Ampara	7°05'	81°45'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Jaffna	-	-	Trop. F.	de Silva (1957)
Analaiver	9°49'	80°02'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Kankesanthurai	9°41'	79°54'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Point de Pedro	9°50'	80°14'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
North Western Province				
Kurunegala	7°45'	80°15'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Puttalam	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; scrub jungle
Sabaragamuwa Province				
Ratnapura	6°35'	80°35'	Trop. F.	Balasubramaniam <i>et al.</i> (1990); Karunaratne (1992); W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Sinharaja FR	6°24'	80°30'	Trop. F.	Zoysa and Raheem (1987)
Southern Province				
Galle	6°03'	80°12'	Trop. F.	Balasubramaniam <i>et al.</i> (1990); C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands
Kalutara	6°34'	79°57'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
South Asia				
Matara	5°57'	80°36'	Trop. F.	W.A.M.K. Weerasinghe, BIS
Kekandura RF	6°10'	80°30'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Hambantota	6°19'	81°00'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in scrub jungle
Galwewa	6°07'	81°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Uva Province				
Badulla	7°00'	81°15'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Badulla	6°47'	80°57'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Haputale	6°40'	81°20'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Monaragala	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in marsh
Monaragala	6°50'	79°53'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Western Province				
Colombo	6°55'	80°11'	Trop. F.	D. Wickramasinghe, BIS
Awissawella	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in marsh
Bellaniwila Attidiya	6°51'	80°10'	Trop. F.	D. Wickramasinghe, BIS
Colombo	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens
Labugama	6°59'	80°56'	Trop. F.	D. Wickramasinghe, BIS; W.L.D.P.T.S. de A. Goonatilake, BIS; many locations
Gampaha	7°15'	80°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in plantations
Arugodda	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens
Gampaha	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens
Handurumulla	6°34'	79°57'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; many locations

***Rattus sikkimensis* (Hinton, 1919)**

Synonyms: *Mus brunneusculus* Hodgson, 1845; *Rattus rattus brunneusculus* (Hodgson, 1845); *Rattus rattus sikkimensis* Hinton, 1919

Order: Rodentia

Family: Muridae

Common names: English: Sikkim Rat; Nepalese: *Rukh Musa*

Taxonomic remarks: Ellerman (1961) synonymised *Rattus rattus sikkimensis* Hinton, 1919 with *Rattus rattus brunneusculus* (Hodgson, 1845). Musser and Heaney (1985) suggested that *Rattus remotus* (Robinson & Kloss, 1914) is 'really an insular population of *Rattus sikkimensis*'. However, Corbet and Hill (1992) synonymised *Rattus rattus sikkimensis* Hinton, 1919 with *Rattus remotus* (Robinson & Kloss, 1914) based on the argument that latter name is prior to the former. However, Musser and Carleton (1993), and Agrawal (2000) treat it as a distinct species

Habit: Arboreal, terrestrial

Habitat: Temperate montane forests, tropical and subtropical evergreen forests, montane forests, arable land, cultivated land (including abandoned jhum) adjacent to forests in montane areas

Niche: Cultivated land

Elevation: ~2,000m

Distribution

Global: China, India, Lao PDR, Myanmar, Nepal, Thailand, Vietnam

South Asia: India, Nepal

Extent of Occurrence: 5,001-20,000 sq km

Area of Occupancy: 501-2,001 sq km

Locations/subpopulations: 21/many, Contiguous

Habitat status: Quantitative and qualitative decrease in habitat due to human induced habitat changes

Threats

Pesticide use, fire

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; subjective; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Not listed

LEAST CONCERN in South Asia

Presence in Protected Areas

None

Recommendations

Research: Survey, life history studies

Management: Monitoring

Captive stocks: None

Comments

Trade of this species might occur but the compilers are not sure about it

Sources

Agrawal, 2000; Ellerman, 1961; Shreshta, 1997; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Rattus sikkimensis* (Hinton, 1919) is known in India and Nepal



Distribution of *Rattus sikkimensis* (Hinton, 1919) in South Asia (India and Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
INDIA					Central Nepal				
Arunachal Pradesh					Nagarkot	27°42'	85°31'	Mon. St. F.	Ellerman (1961)
Lohit					Pathebaghan	27°51'	85°28'	Mon. St. F.	Ellerman (1961)
Dening	28°01'	96°14'	Trop. F. Ellerman (1961); in Mishmi Hills		Gorkha				
Dreyi	28°15'	96°00'	Trop. F. Ellerman (1961); in Mishmi Hills		Deosali	28°00'	84°50'	Mon. St. F.	Ellerman (1961)
Manipur					Nanglepani	28°00'	84°50'	Mon. St. F.	Ellerman (1961)
Imphal									
Lake Loktak	24°33'	93°50'	Trop. F. Ellerman (1961)		Eastern Nepal				
Meghalaya					Changri	27°58'	86°47'	Mon. St. F.	Ellerman (1961)
Garo Hills	-	-	Trop. F. Ellerman (1961)		Kakani	27°49'	89°15'	Mon. St. F.	Ellerman (1961)
Dara Banda	25°31'	90°15'	Trop. F. Ellerman (1961)						
Tura									
Nagaland									
Tuensang	26°00'	94°15'	Trop. F. Agrawal (2000)						
Nega Hills									
Sikkim									
Chakung	-	-	Temp. F. Ellerman (1961)						
Rongli	27°13'	88°42'	Temp. F. Agrawal (2000)						
Singhik	27°31'	88°34'	Temp. F. Agrawal (2000)						
West Bengal									
Darjiling	26°45'	88°15'	Temp. F. Agrawal (2000)						
Darjiling	27°04'	88°29'	Temp. F. Ellerman (1961)						
Kalimpong	-	-	Temp. F. Ellerman (1961); near Darjiling (26°45' N & 88°15' E)						
Gopaldhara									
Pashok	21°04'	88°24'	Trop. F. Agrawal (2000)						
NEPAL									
Bouzini	-	-	-	Ellerman (1961)					
Chalnakhall	-	-	-	Ellerman (1961)					
Mircourt	-	-	-	Ellerman (1961)					
Sipuri	-	-	-	Ellerman (1961)					
Sunachurn	-	-	-	Ellerman (1961)					
? Location	-	-	Mon. St. F.	Shreshtha (1997); found in evergreen forest zones of Nepal, included as <i>Rattus rattus brunneusculus</i> (Hodgson)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus stoicus* (Miller, 1902)**

VULNERABLE

Synonyms: *Mus stoicus* Miller, 1902; *Mus taciturnus* Miller, 1902; *Mus rogersi* Thomas, 1907; *Rattus rogersi* (Thomas, 1907)

Order: Rodentia

Family: Muridae

Common names: English: Andaman Rat

Taxonomic remarks: Ellerman (1961) opined that it "possibly represents *Rattus palmarum*; possibly a member of *sabanus* group, or perhaps a representative of *mulleri* group". Musser and Heaney (1985) redescribed this species. Corbet and Hill (1992), and Agrawal (2000) consider it as a distinct species

Habit: Nocturnal

Habitat: Tropical and subtropical evergreen forests

Niche: Inhabits dense jungles

Elevation: 0-200m

Distribution

Global: Endemic to India

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: < 500 sq km

Locations/subpopulations: 2/2, Fragmented

Habitat status: Unknown

Threats

Competition from alien species

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE D2**

Rationale: Restricted to 5 or less than 5 locations.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history studies, limiting factor, research

Management: Monitoring

Conservation measures: *Needed*: Research to monitor the habitat, biology, ecology, population numbers, trend; site-based actions plans in Protected Areas

Captive stocks: None

Comments

One specimen collected by T. P. Bhattacharyya from Middle Andaman Island in 1970

Sources

Agrawal, 2000; Srinivasulu and Pradhan, 2003

Compilers

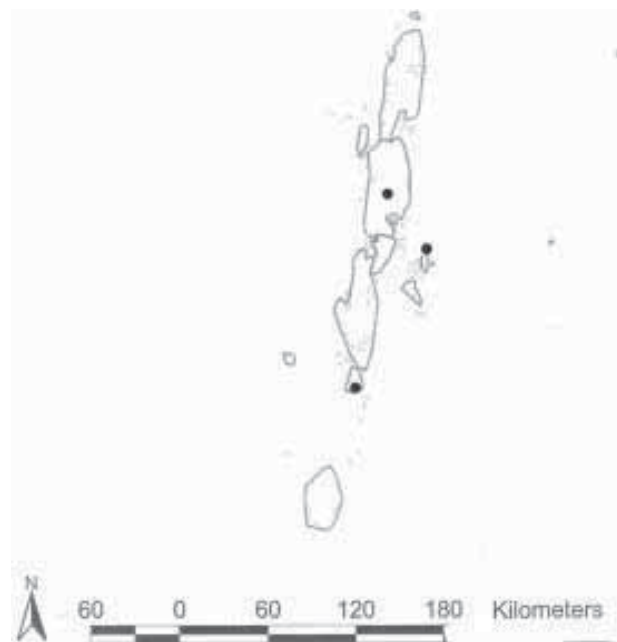
S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: T.P. Bhattacharyya

Recent Field Studies

T. P. Bhattacharyya, Middle Andaman, 1970, General faunistic survey

Locations from where *Rattus stoicus* (Miller, 1902) is known in India



Distribution of *Rattus stoicus* (Miller, 1902) (Endemic to India) from literature and recent field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Andaman and Nicobar Islands

Henry Lawrence 12°09' 93°05' Trop. F. Agrawal (2000)
Island

Middle Andaman 12°30' 92°50' Trop. F. T.P. Bhattacharyya (pers. comm.)
Island

South Andaman 11°45' 92°10' Trop. F. Agrawal (2000)
Island

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus tanezumi* (Temminck, 1844)**

NOT EVALUATED in South Asia

Synonyms: *Mus tanezumi* Temminck, 1844

Order: Rodentia

Family: Muridae

Common names: English: Tanezumi Rat

Taxonomic remarks: Musser and Carleton (1993) opine that this species varies from *Rattus rattus* (Linnaeus, 1758) (2N=38/40) by chromosomal (2N=42), morphological and biochemical traits. The indigenous range of this species is generally north Pakistan to northeast India in South Asia (Musser and Carleton, 1993). Six of the subspecies attributed to *Rattus rattus* (Linnaeus, 1758) (*sensu stricto*) would be attributable to this species [see comments under *Rattus rattus* (Linnaeus, 1758)] including the one southern subspecies '*wroughtoni*' (2N=42) having this chromosomal character. Thus, they may all possibly belong to *Rattus tanezumi* (Temminck, 1844), rather than to *Rattus rattus* (Linnaeus, 1758) as accepted. If this is accepted, then *Rattus rattus wroughtoni* Hinton, 1919 will become *Rattus tanezumi wroughtoni* (Hinton, 1919) so as the rest of the subspecies with 2N=42 (Mike Jordan, *pers. comm.*). However, Raman and Sharma (1977) have reported chromosome number 2n=38 or 42 in *Rattus rattus* (Linnaeus, 1758) too (Agrawal, 2000). Moreover, Corbet and Hill (1992), and Agrawal (2000) do not mention anything about this species. Therefore, a *status quo* has been retained in this particular case

Habit: Unknown

Habitat: Unknown

Niche: Unknown

Elevation: Unknown

Distribution

Global: Indigenous to Southeast Asia and introduced in many other locations

South Asia: Bhutan, India, Nepal, Pakistan

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: Unknown

Habitat status: Unknown

Threats

Unknown

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; subjective; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **NOT EVALUATED in South Asia**

Rationale: Taxonomic uncertainty

National Status

Not Evaluated

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Unknown

Management: Unknown

Captive stocks: None

Comments

Considerable confusion exists regarding the taxonomy of this species. Based on chromosome numbers recorded for a few subspecies of *Rattus rattus* from India, many other subspecies were clubbed together under *Rattus tanezumi*. However, no records exist on chromosomal and genetic studies of most of the species that were pooled in this taxon. Moreover, these subspecies could be identified from morphological differences and hence for the present we will consider the synonymised subspecies from India under *Rattus rattus* complex (Corbet & Hill, 1992)

Sources

Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

***Rattus turkestanicus* (Satunin, 1903)**

LEAST CONCERN in South Asia

Synonyms: *Mus rattoides* Hodgson, 1845; *Mus turkestanicus* Satunin, 1903; *Epimys rattus shigarus* Miller, 1913; *Rattus rattus shigarus* (Miller, 1913)

Order: Rodentia

Family: Muridae

Common names: English: Turkestan Rat; Nepalese: *Hemali Musa*

Taxonomic remarks: Ellerman (1961) included this species under *Rattus rattoides* (Hodgson, 1845) and listed *Rattus rattoides rattoides* (Hodgson, 1845) and *Rattus rattoides turkestanicus* (Satunin, 1903). The name *Rattus rattoides* (Hodgson, 1845) [earlier *Mus rattoides* Hodgson, 1845] was found to be preoccupied by *Mus rattoides* Pictet & Pictet, 1844 from Brazil, hence Schlitter and Thonglongya (1971) replaced it with the next available name *Mus turkestanicus* Satunin 1903 [later *Rattus turkestanicus* (Satunin, 1903)]. Corbet and Hill (1992) synonymised *Rattus rattus khumbuensis* Biswas & Khajuria 1955 with *Rattus turkestanicus* (Satunin, 1903). Agrawal (2000) dealt in detail about the existing overlaps of published information regarding forms of this species reported from Nepal, and opined that to accommodate Nepal specimens earlier named *Rattus rattoides rattoides* (Hodgson, 1845) be replaced by the name *Rattus turkestanicus khumbuensis* Biswas & Khajuria, 1955. Roberts (1997) has made a reference of a distinct subspecies, *Rattus turkestanicus gilgitianus* Akhtar, 1955 occurring in Gilgit (Pakistan). This species may include two or more taxa and requires revision. Musser and Carleton (1993) point out that the oldest name for the complex is *pyctoris* (Hodgson, 1845); incorrectly listed as a synonym of *Rattus nitidus* (Hodgson, 1845) by Ellerman, 1961 and would replace *turkestanicus* if all samples represent a single species, or would identify the Nepal and Sikkim populations if not conspecific

Habit: Nocturnal, fossorial/terrestrial

Habitat: Temperate coniferous forests, temperate forests, rocky areas such as, inland cliffs, mountain peaks, human settlements, urban areas, cultivated lands

Niche: Rocky areas, irrigated fields

Elevation: 1,200-4,250m

Distribution

Global: Afghanistan (North & East), Bangladesh, Bhutan, China (South), India, Iran (Northeast), Kirgizhia, Nepal, Pakistan

South Asia: Bangladesh, Bhutan, India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [Bangladesh unknown; Bhutan unknown; India > 20,000; Nepal > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh unknown; Bhutan unknown; India > 2,000; Nepal > 2,000; Pakistan > 2,000]

Locations/subpopulations: Many/many, Contiguous

Habitat status: Stable

Threats

Threats not known for the species or the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred; observed; field study

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bangladesh: Data Deficient

Rationale: Exact location not known

Bhutan: Data Deficient

Rationale: Exact location not known

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Wildlife Legislation:

Bangladesh: None

Bhutan: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history studies

Management: Monitoring

Captive stocks: None

Comments

Considered as a pest in Pakistan where it affects in altitudinal range of 2,300-3,100m

Sources

Abe, 1971; Agrawal, 2000; Roberts, 1997; Shreshta, 1997; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Rattus turkestanicus* (Satunin, 1903) is known in Bangladesh, Bhutan, India, Nepal and Pakistan



Distribution of *Rattus turkestanicus* (Satunin, 1903) in South Asia (Bangladesh, Bhutan, India, Nepal and Pakistan) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH					West Bengal				
? Location	-	-	-	Srinivasulu and Pradhan (2003)	Darjeeling	27°01'	77°50'	Temp. F.	Agrawal (2000)
					Ghoorn				
BHUTAN					NEPAL				
? Location	-	-	-	Srinivasulu and Pradhan (2003)	Central Nepal				
					Ghasa	-	-	Mon.	Abe (1971); Agrawal (2000)
					Helembu	-	-	St. F.	Abe (1971); Agrawal (2000)
INDIA					Khumbu	27°47'	86°45'	Mon.	Shreshtha (1997)
Jammu and Kashmir					Lang Tang NP	28°16'	85°37'	Mon.	Abe (1971); Agrawal (2000)
Sardalla	-	-	Mon.	Agrawal (2000)	Nagerest	-	-	Mon.	Abe (1971); Agrawal (2000)
Shikargarh	-	-	St. F.	Agrawal (2000)	Namche Bazar	27°49'	86°43'	Mon.	Abe (1971); Agrawal (2000)
			St. F.		Porcha	-	-	Mon.	Abe (1971); Agrawal (2000); near Khumbu
Gilgit	36°19'	74°41'	Mon.	Agrawal (2000)	Syang Gompa	28°47'	83°42'	Mon.	Abe (1971); Agrawal (2000)
Baltistan			St. F.		Tatopani	27°57'	85°56'	Mon.	Abe (1971); Agrawal (2000)
Gilgit	35°45'	74°30'	Mon.	Agrawal (2000)	Tukucha	28°43'	83°40'	Mon.	Abe (1971); Agrawal (2000)
Shigar	35°25'	75°44'	Mon.	Agrawal (2000)				St. F.	
			St. F.						
Udhampur	-	-	Mon.	Agrawal (2000), in Udhampur					
Daksum			St. F.	(33°00' N & 75°10' E)					
Himachal Pradesh					PAKISTAN				
Chamba	32°34'	76°08'	Temp. F.	Agrawal (2000)	North West Frontier Province				
Chamba					Chitral	36°15'	72°15'	Mon.	Roberts (1997)
Kullu	31°58'	77°06'	Temp. F.	Agrawal (2000)	Chitral			St. F.	
Kullu									
Lahul & Spiti					Swat				
Lahul	32°35'	77°00'	Temp. F.	Agrawal (2000)	Swat Kohistan	35°35'	72°30'	Mon.	Roberts (1997)
								St. F.	
Sikkim					Punjab				
North Sikkim	27°38'	88°36'	Temp. F.	Agrawal (2000)	Rawalpindi				
Chunthang	27°44'	88°36'	Temp. F.	Agrawal (2000)	Murree Hills	33°55'	73°25'	Trop. F.	Roberts (1997)
Lachen									
Uttaranchal									
?Almora	29°50'	79°30'	Temp. F.	Agrawal (2000)					
Kumaon									

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi-Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rattus vicerex* (Bonhote, 1903)**

LEAST CONCERN

Synonyms: *Mus vicerex* Bonhote, 1903

Order: Rodentia

Family: Muridae

Common names: English: Short-tailed Turkestan Rat

Taxonomic remarks: Ellerman (1961) synonymised *Mus vicerex* Bonhote, 1903 with *Rattus rattoides turkestanicus* (Satunin, 1903), a trend also followed by Corbet and Hill (1992), and Musser and Carleton (1993). However, Chakraborty (1983) restored *Rattus vicerex* (Bonhote, 1903) on the basis of tail characters, and later Agrawal (2000) maintained the same stand and treated it as full species. See Agrawal (2000) for further details

Habit: Majorly nocturnal, sometimes diurnal

Habitat: Found in irrigated agricultural lands and human dwellings

Niche: Prefers indoor, crop fields, human settlements

Elevation: Unknown

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Pakistan > 2,000]

Locations/subpopulations: 7/many, Contiguous

Habitat status: Stable

Threats

Unknown

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, informal sightings, literature; subjective, inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Pakistan: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research, epidemiology

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Agrawal, 2000; Chakraborty, 1983; Ellerman, 1961; Srinivasulu and Pradhan, 2003

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

Chakraborty, S. in Jammu and Kashmir, India, 1974-1975, Contribution to the knowledge of the mammalian fauna of Jammu and Kashmir, India

Locations from where *Rattus vicerex* (Bonhote, 1903) is known in India and Pakistan



Distribution of *Rattus vicerex* (Bonhote, 1903) (Endemic to India and Pakistan) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Himachal Pradesh				
Shimla	31°06'	77°10'	Mon. St. F.	Agrawal (2000), Ellerman (1961)
Shimla				
Jammu and Kashmir				
Wardhwan	-	-	Mon. St. F.	Ellerman (1961)
Punch				
Punch	33°46'	74°06'	Mon. St. F.	Ellerman (1961)
Udampur				
Kishtwar	33°19'	75°46'	Mon. St. F.	Ellerman (1961)
PAKISTAN				
Punjab				
Islamabad				
Islamabad	33°40'	73°10'	Trop. F.	Agrawal (2000)
Rawalpindi				
Murree	33°55'	73°25'	Trop. F.	Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Paddy. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rhizomys pruinosus* Blyth, 1851**

ENDANGERED in South Asia

Synonyms: None

Order: Rodentia

Family: Muridae

Common names: English: Hoary Bamboo Rat

Taxonomic remarks: None

Habit: Nocturnal, fossorial

Habitat: Tropical and subtropical deciduous forests

Niche: Bamboo thickets

Elevation: Up to 1,500m

Distribution

Global: China, India, Malaysia, Myanmar, Thailand, Vietnam

South Asia: India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 10/5, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of > 20% in last 20 years and a future decline at the rate of > 10% in the next 10 years is predicted due to habitat loss because of shifting cultivation and spread of human habitation

Threats

Habitat loss and degradation due to shifting cultivation, bamboo extraction; accidental mortality, hunting for local consumption purposes

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, literature; estimated; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED in South Asia B2ab(ii,iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. Although the species occurs in the neighbouring region the habitat within South Asia is declining for this species, hence the category is retained.

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972 amended up to 2002

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Mizoram: Dampa TR

Recommendations

Research: Survey, life history, limiting factor studies

Management: Habitat management, monitoring

Conservation measures: *Needed*: Plans for community awareness by means of Conservation measures education, site-based actions for the maintenance, restoration and

conservation of the species and the habitat, research to monitor the population trend, habitat status, biology, ecology of the species

Captive stocks: None

Comments

No authentic report in the last 50 years. This species occurs in Arunachal Pradesh, Manipur, Mizoram, Nagaland and Tripura (S.S. Saha, pers. comm.)

Sources

Agrawal, 2000; Mishra *et al.*, 2004

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, A. R. Binu Priya

Reviewers: S.S. Saha

Recent Field Studies

None

Locations from where *Rhizomys pruinosus* Blyth, 1851 is known in India



Distribution of *Rhizomys pruinosus* Blyth, 1851 in South Asia (India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang	27°23'	96°15'	Trop. F.	Mishra <i>et al.</i> (2004)
Namdapha NP	to 27°39'	to 96°58'		
Himachal Pradesh				
Himachal Pradesh	-	-	Temp. F.	Many localities; S.S. Saha. (pers. comm.)
Manipur				
Bishnupur	24°38'	93°46'	Trop. F.	Agrawal (2000)
Bishnupur				
Tamenglong	24°58'	93°33'	Trop. F.	Agrawal (2000)
Tamenglong				
Meghalaya				
East Khasi Hills	25°18'	91°42'	Trop. F.	Agrawal (2000)
Cherrapunji				
Mizoram				
Aizawl	-	-	Trop. F.	T.P. Bhattacharyya (pers. comm.)
Dampa TR				
Nagaland				
Tuensang	26°15'	94°15'	Trop. F.	Agrawal (2000)
Mokokchung				
Tripura				
Tripura	-	-	Trop. F.	Many localities; S.S. Saha. (pers. comm.)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Rhombomys opimus* (Lichtenstein, 1823)**

VULNERABLE in South Asia

Synonyms: *Meriones opimus* Lichtenstein, 1823

Order: Rodentia

Family: Muridae

Common names: English: Great Gerbil

Taxonomic remarks: Roberts (1997) reviewed the Pakistan population. Corbet and Hill (1992) inform that it occurs along the western border of Pakistan, and also provide in brief the characteristic features of the genus

Habit: Diurnal, fossorial, colonial often seen associated with other gerbils

Habitat: Apple orchards and clay-sandy embankments. Prefers steppe mountains and upland deserts

Niche: Sand dunes with scattered vegetation

Elevation: < 900m

Distribution

Global: Afghanistan, China, Iran, Kazakhstan, Mongolia, Pakistan

South Asia: Pakistan

Extent of Occurrence: 5,001-20,000 sq km [Approximately 15,000 sq km in north Pakistan as based on the inference of areas available between locations currently known to have the species]

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 2/1, Fragmented [Occurs in isolated colonies. One subpopulation known from two locations in Baluchistan]

Habitat status: Quantitative and qualitative decrease in habitat due to habitat alterations because of natural and human induced changes

Threats

Threats not known for the species or the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; subjective; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED** ↓

VULNERABLE in South Asia B2ab(iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Pakistan

Baluchistan: Hazar Ganji NP

Recommendations

Research: Survey, distribution range needs to be studied

Management: Habitat management, monitoring

Captive stocks: None

Comments

The species occurs marginally in the region, outside which it seems commoner

Sources

Roberts, 1997; Srinivasulu and Pradhan, 2003

Compilers

P.O. Nameer, Mike Jordan, C. Srinivasulu, M. Siliwal

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Rhombomys opimus* (Lichtenstein, 1823) is known in Pakistan



Distribution of *Rhombomys opimus* (Lichtenstein, 1823) in South Asia (Pakistan) from literature and field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
PAKISTAN Baluchistan Chagai Nushki	29°33'	66°01'	Semi D.	Roberts (1997); in Chagai desert environs
Kelat Mastung	29°48'	66°51'	Semi D.	Roberts (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Srilankamys ohiensis* (Phillips, 1929)**

VULNERABLE

Synonyms: *Rattus ohiensis* Phillips, 1929

Order: Rodentia

Family: Muridae

Common names: English: Ohiya Rat; Sinhalese: *Kelle Miya*;

Tamil: *Kart'elli*

Taxonomic remarks: Ellerman (1961) listed it as *Rattus ohiensis* Phillips, 1929. Corbet and Hill (1992) remark that this species was included with considerable reservations, in *Rattus* (*Apomys*) by Ellerman (1949), in *Rattus* (*Lenothrix*) by Ellerman (1961), and in *Rattus* (*Leopoldamys*) by Misonne (1969). Subsequently, Musser (1981) erected the genus *Srilankamys* to accommodate this very distinctive species

Habit: Nocturnal, fossorial

Habitat: Tropical and subtropical evergreen forests, lowland montane forests

Niche: Low country and montane rain forest

Elevation: 165-2,310m

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 5,001-20,000 sq km

Area of Occupancy: 501-2,000 sq km [Estimated 600 sq km, based on the approximate estimate of areas with likely habitat for the species including the currently known areas]

Locations/subpopulations: 9/3, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% in the last 10 years with a similar trend being predicted in the future due to deforestation, altered habitat, under growth clearing for cardamom cultivation

Threats

Habitat loss and degradation due to expansion of agriculture, clear-cutting, natural disasters like forest fire in Horton Plains, under growth clearing (in Knuckles Range), predation by domestic carnivores

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, informal sightings, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Sri Lanka

Central Province: Horton Plains NP, Knuckles Range FR

Sabargamuwa Province: Delwala FR, Sinharaja FR

Recommendations

Research: Survey

Management: Habitat management

Conservation measures: *Needed:* Formulation and implementation of national level legislative actions, site-based action plans in Protected Areas, research towards monitoring trends, range and numbers of population, status of the habitat, biology and ecology

Captive stocks: None

Comments

None

Sources

Phillips, 1980; Srinivasulu and Pradhan, 2003; Nalinda, 1990; Phillips, 1935; Zoysa and Raheem, 1987 BIS on species by: W.L.D.P.T.S. de A. Goonatilake

Compilers

W.L.D.P.T.S. de A. Goonatilake, S.U. Sarker, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: W.L.D.P.T.S. de A. Goonatilake

Recent Field Studies

Goonatilake, W.L.D.P.T.S. de A., Sinharaja Forest Reserve, Sabargamuwa Province, Sri Lanka, 2002-2003, Survey of small mammals

Locations from where *Srilankamys ohiensis* (Phillips, 1929) is known in Sri Lanka



Distribution of *Srilankamys ohienensis* (Phillips, 1929) (Endemic to Sri Lanka) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
SRI LANKA				
Central Province				
Matale				
Gammaduwa	7°34'	80°42'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatillake, BIS
Mousekande	-	-	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatillake, BIS
Riverstern	7°24'	80°48'	Trop. F.	W.L.D.P.T.S. de A. Goonatillake, BIS; in Knuckles FR; montane forest, cardamom plantation. Threats include forest clearing
Nuwara Eliya				
Horton Plains NP	6°49'	80°48'	Trop. F.	Phillips (1980); Nalinda (1990); W.L.D.P.T.S. de A. Goonatillake, BIS
Ohiya	6°49'	80°50'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatillake, BIS
Sabaragamuwa Province				
Ratnapura				
Delwala FR	7°16'	80°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatillake, BIS
Kudawa	-	-	Trop. F.	Zoysa and Raheem (1987); in Sinharaja FR (6°24' N & 80°30' E); tropical rain forest
Sinharaja FR	6°24'	80°30'	Trop. F.	W.L.D.P.T.S. de A. Goonatillake, BIS; field observation
Uva Province				
Badulla				
Haputale	6°47'	80°57'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatillake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Tatera indica (Hardwicke, 1807)

LEAST CONCERN in South Asia

Synonyms: *Dipus indicus* Hardwicke, 1807; *Gerbillus cuvieri* Waterhouse, 1838; *Gerbillus otarius* Cuvier, 1838; *Gerbillus harwickei* Gray, 1843; *Tatera indica hardwickei* (Gray, 1843); *Tatera ceylonica* Wroughton, 1906; *Tatera indica ceylonica* (Wroughton, 1906); *Tatera dunnii* Wroughton, 1917; *Tatera sherrini* Wroughton, 1917

Order: Rodentia

Family: Muridae

Common names: English: Antelope Rat, Indian Gerbil; Telugu: *Baraka Eluka, Jinka Eluka*; Marathi: *Gondedar Sheputwala Undir*; Tamil (Tribal): *Kunjan, Velleli*

Taxonomic remarks: Ellerman (1961) listed four subspecies *Tatera indica indica* (Hardwicke, 1807), *Tatera indica hardwickei* (Gray, 1843), *Tatera indica ceylonica* (Wroughton, 1906), and *Tatera indica cuvieri* (Waterhouse, 1838) from the region. Agrawal and Chakraborty (1981); Bates (1988); Corbet and Hill (1992); and Agrawal (2000) list only two valid subspecies *Tatera indica indica* (Hardwicke, 1807) and *Tatera indica cuvieri* (Waterhouse, 1838) from this region

Habit: Nocturnal, fossorial, gregarious, omnivorous

Habitat: Tropical and subtropical dry deciduous forests, scrub forests, grasslands, rocky areas, hot deserts, arid and semi-arid regions, uncultivated areas

Niche: Undisturbed barren open areas

Elevation: 0-2,000m

Distribution

Global: Afghanistan, India, Iran, Iraq, Kuwait, Nepal, Pakistan, Sri Lanka

South Asia: India, Nepal, Pakistan, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000; Pakistan > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal > 2,000; Pakistan > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Stable, this species is adept to changing habitats

Threats

Habitat loss and degradation due to expansion of agricultural activities, agro-industry based farming activities, expansion of human settlements, stone quarrying, invasion of exotic plant species, hunting for local consumption purposes, accidental mortality due to poisoning for hunting, pest control practices, natural calamities like drought, presence of predators

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Very common, affects borders of cultivated lands, rocky regions

Data source

Field study, museum specimens, informal sightings, literature; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation:

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Gundla Brahmeshwaram WS, Kawal WS, Nagarjunsagar-Srisailem TR, Pocharam WS, Rollapadu WS, Sri Venkateswara WS

Gujarat: Darrah WS

Karnataka: Bannerghatta NP

Madhya Pradesh: Kuno-Palanpur WS

Rajasthan: Desert NP; Sariska NP

Tamil Nadu: Kalakad-Mundanthurai TR, Mudumalai WS, Srivilliputhur Grizzled Giant Squirrel S

Sri Lanka

Udawalwe NP, Yala NP

Recommendations

Research: Taxonomic studies

Conservation measures: *Needed:* Formulation of site-based action plans in Protected Areas

Captive stocks: None

Comments

Widely distributed where it occurs. The Sri Lankan subspecies could be different from the mainland species. Further taxonomic studies are recommended

Sources

Agrawal, 2000; Kankane, 2004; Phillips, 1980; Roberts, 1997; Srinivasulu and Pradhan, 2003; Corbet and Hill, 1992; Johnson *et al.*, 1980; IUCN, WCMC and FAO, 1997; Phillips, 1935 BIS on species by: A. Visa *et al.*, C. Srinivasulu and Bhargavi Srinivasulu, J. Joshua, K. Mukta Bai, K. Shenoy, P. Neelanarayanan; P. Padmanabhan; Suresh and Arun, W.L.D.P.T.S. de A. Goonatilake

Compilers

A.K. Chakravarthy, Mike Jordan, Shomen Mukherjee, A.R. Binu Priya, S.U. Sarker, C. Srinivasulu, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: W.L.D.P.T.S. de A. Goonatilake, Shomita Mukherjee, Meena Venkataraman, C. Srinivasulu

Recent Field Studies

India

M. Venkataraman 1997, Distribution of small mammals in Mudumalai Wildlife Sanctuary, Tamil Nadu

Shomita Mukherjee, Sariska Tiger Reserve, Rajasthan, 1995-96, Food habits of three carnivores in Sariska
 Sivaprakasam, C., Mayiladhuthurai, 1998, Burrow ecology of field rodents
 Neelananarayanan, P., Nagapattinam district, 1993-1994, Burrow ecology studies and incidence as prey in Barn Owl pellets
 Neelananarayanan, P., In and around Puttanampatti and Omandur villages, Jan-March, 2003, Survey of rodents and insectivores
 Easa *et al.*, Kerala, 1993-1998, Survey of small mammals
 Mukta Bai, K., Mysore, 1970-1985, Different projects on Rodent control Yashoda, Mandya
 Krishna Kumari, M.K., Kolar and other places in Karnataka
 Suresh, G and P. Arun, Coimbatore, 2003, Small mammals survey
 Srinivasulu, C. and Bhargavi Srinivasulu, Many locations, 1996 onwards, Status of mammals of Andhra Pradesh
 Srinivasulu, C., Nagarjunasagar Srisailem Tiger Reserve, 1996 onwards, Biodiversity of Nagarjunasagar Tiger Reserve
 Srinivasulu, C. and Bhargavi, Kurnool Grasslands in the vicinity of Rollapadu Wildlife Sanctuary, 2002-2003, Study of non Volant small mammals of select areas of Andhra Pradesh
Sri Lanka
 Karunaratne, Udawalawe National Park, 1989
 Goonatilake, W.L.D.P.T.S. de A., Yala National Park, 1993
 IUCN/WCMC/FAO, Bundala, Yala (Blocks 1,2,&3) and Udawalwe NP (Elagamuwa, Minneriya) 1997
 Goonatilake, W.L.D.P.T.S. de A., Many locations in Sri Lanka, 2003

Locations from where *Tatera indica* (Hardwicke, 1807) is known in India, Nepal, Pakistan and Sri Lanka



Distribution of *Tatera indica* (Hardwicke, 1807) in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andhra Pradesh									
? Locations	-	-	-	Agrawal (2000); many localities throughout the state	Guntur Anupu	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisailem TR
Adilabad	-	-	-		Guntur	16°25'	80°15'	Trop. F.	Agrawal (2000); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chennur	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Pranahita WS	Macherla	16°29'	79°26'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Dostnagar	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Near Utnoor (19°22' N & 78°46' E)	Kurnool	15°58'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes; in Nagarjunasagar Srisailem TR
Indhanpally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Utnoor (19°22' N & 78°46' E); in Kawal WS	Pecheruvu				
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Near Utnoor (19°22' N & 78°46' E); in Kawal WS	Rollapadu WS	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in grassland, scrub and agriculture fields; south of Nandikotkur (15°52' N & 78°16' E)
Kadern	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Near Utnoor (19°22' N & 78°46' E); in Kawal WS	Sunnipenta	16°03'	78°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisailem TR
Nirmal	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Veligode	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes. South of Rollapenta (15°52' N & 78°49' E); in Nagarjunasagar Srisailem TR
Utnoor	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Kawal WS					
Chittoor									
Chandragiri Hill	13°35'	79°19'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Mamandur	13°44'	79°29'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Sri Venkateshwara WS	Mahbubnagar				
Tirupati	13°39'	79°25'	Trop. F.	Chakraborty <i>et al.</i> (2004). C. Srinivasulu and Bhargavi Srinivasulu, BIS	Amrabad	16°28'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisailem TR
Cuddapah					Farahabad	16°17'	78°41'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisailem TR
Maisipalli	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; near Rajampet (14°11' N & 79°10' E)	Mannanur	16°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisailem TR
Bakrapeta	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS	Medak				
Koduru	13°58'	79°21'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS	Buthpur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Pocharam WS
Palakonda Hills	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS	Dantepally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Medak (17°45' N & 78°15' E); in Pocharam WS
Siddavatam	14°30'	78°59'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS	Medak	17°45'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
East Godavari					Sangareddy	17°37'	78°05'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; also near Manjira Barrage in Manjira WS
Addatigala	17°29'	82°01'	Trop. F.	Chakraborty <i>et al.</i> (2004)					
					Nalgonda	16°42'	78°56'	Trop. F.	C. Srinivasulu (pers. comm.)
					Devarakonda				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Tatera indica* (Hardwicke, 1807) in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Nagarjunasagar	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisailem TR	Chattisgarh	-	-	-	Agrawal (2000); many localities throughout the state
Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisailem TR	Goa	-	-	-	Agrawal (2000); many localities throughout the state
Nellore	14°08'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Gujarat	-	-	-	Agrawal (2000); many localities throughout the state
Gudur	14°55'	79°59'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS		23°42'	69°34'	Trop. F.	J. Joshua, BIS
Kavali	14°55'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS		23°16'	68°15'	Trop. F.	J. Joshua, BIS
Tada	13°35'	80°02'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Prakasam	15°34'	79°07'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Cumbum	15°23'	78°53'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwara Metta WS		30°22'	76°46'	Trop. F.	Agrawal (2000)
Diguvametta	15°23'	78°53'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwara Metta WS		29°10'	75°45'	Trop. F.	Agrawal (2000)
Rangareddy	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Haryana				
Anatagiri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Ambala				
Visakhapatnam	18°20'	82°52'	Trop. F.	Agrawal (2000)	Ambala				
Araku	18°20'	82°52'	Trop. F.	Agrawal (2000)	Hissar				
Warnagal	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Eturagaram WS	Himachal Pradesh				
Etur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Eturagaram WS	Kangra	32°26'	76°16'	Mon.	Agrawal (2000)
Pasra	18°12'	80°10'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kangra			St. F.	
Tadwai	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Eturagaram WS	Sirmaur				
Venkatapuram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E) in Eturagaram WS	Sirmaur	30°45'	77°30'	Mon.	Agrawal (2000)
					Sirmaur			St. F.	
					Solan				
					Solan	30°55'	77°07'	Mon.	Agrawal (2000)
					Solan			St. F.	
Bihar					Jammu and Kashmir				
? Locations	-	-	-	Agrawal (2000); many localities throughout the state	Jammu	32°45'	74°50'	Mon.	Agrawal (2000)
					Jammu			St. F.	
Darbhangha	-	-	Trop. F.	Agrawal (2000)	Pathankot			Mon.	Agrawal (2000)
Darbhangha	-	-	Trop. F.	Agrawal (2000)	Pathankot			St. F.	

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Distribution of *Tatera indica* (Hardwicke, 1807) in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Udampur	32°56'	75°08'	Mon. St. F.	Agrawal (2000)	Orissa Puri Puri	19°48'	85°51'	Trop. F.	Agrawal (2000)
Jharkhand ? Locations	-	-	-	Agrawal (2000); many localities throughout the state	Punjab Ludhiana Ludhiana	30°53'	75°51'	Trop. F.	Agrawal (2000)
Karnataka ? Locations	-	-	-	Agrawal (2000); many localities throughout the state	Rajasthan ? Locations	-	-	-	Agrawal (2000); many localities throughout the state
Bangalore Shivanahalli	-	-	Trop. F.	K. Shenoy, BIS, also in Bannerghatta NP	Barmer and Jaisalmer Desert NP	-	-	D.	Agrawal (2000)
Kolar Kolar	13°20'	78°10'	Trop. F.	K. Mukta Bai, BIS	Tamil Nadu ? Locations	-	-	-	Agrawal (2000); many localities throughout the state; J. Joshua, BIS
Mandya Mandya	12°35'	76°40'	Trop. F.	K. Mukta Bai, BIS	Coimbatore Anaikatty	11°00'	77°30'	Trop. F.	G. Suresh and P. Arun, BIS
Mysore Mysore	12°18'	76°30'	Trop. F.	K. Mukta Bai, BIS	Nagapattinam Manampandal Nagapattinam Poraiyar Thillaiyadi Thiruvudaikazhi	-	-	Trop. F.	P. Neelamarayanan, BIS; in few localities Trop. F. P. Neelamarayanan, BIS; in few localities Trop. F. P. Neelamarayanan, BIS Trop. F. P. Neelamarayanan, BIS Trop. F. P. Neelamarayanan, BIS
Kerala Palakkad Thiruvazhamkunnu	-	-	Trop. F.	Visa <i>et al.</i> , BIS, in Livestock Research Station	Nilgiris Mudumalai	11°037'	76°34'	Trop. F.	Meena Venkataraman (1997)
Thiruvananthapuram Thiruvananthapuram	8°29'	76°59'	Trop. F.	Easa <i>et al.</i> , (1993-1998).	Thanjavur Thanjavur	10°30'	79°30'	Trop. F.	P. Neelamarayanan, BIS; few localities
Thrissur Vellanikara	-	-	Trop. F.	Visa <i>et al.</i> , BIS; in Kerala Agriculture University Campus; north of Thrissur (10°31' N & 76°13' E)	Trichy Puttanampatti	-	-	Trop. F.	P. Neelamarayanan, BIS
Madhya Pradesh ? Locations	-	-	-	Agrawal (2000); many localities throughout the state	Uttaranchal ? Locations	-	-	-	Agrawal (2000); many localities throughout the state
Maharashtra ? Locations	-	-	-	Agrawal (2000); many localities throughout the state					

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Distribution of *Tatera indica* (Hardwicke, 1807) in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Uttar Pradesh ? Locations	-	-	-	Agrawal (2000); many localities throughout the state	SR LANKA North Central Province Polonnaruwa Minneriya NP	8°00'	80°53'	Trop. F.	IUCN, WCMC & FAO (1997); W.L.D.P.T.S. de A. Goonatilake; BIS; sighted on roadside
West Bengal ? Locations	-	-	-	Agrawal (2000); many localities throughout the state	Anuradhapura Kathupotha	8°07'	80°14'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake; BIS; in semi-evergreen, scrub jungle. Threats include deforestation and conversion of forests for cultivation
Nepal ?localities	-	-	-	Corbet and Hill (1992) opine that this taxon is distributed throughout low-land Nepal	Kohetigollewa	8°50'	80°10'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake; BIS; in semi-evergreen, scrub jungle. Threats include deforestation and conversion of forests for cultivation
Western Nepal Tikapur	28°30'	81°10'	Mon. St. F.	Johnson <i>et al.</i> (1980)	Rajaguru	8°32'	80°13'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake; BIS; in semi-evergreen, scrub jungle. Threats include deforestation and conversion of forests for cultivation
PAKISTAN Baluchistan Bolhan Mach	29°02'	67°06'	Semi D.	Roberts (1997)	Siyabalawa	8°39'	80°41'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake; BIS; in semi-evergreen, scrub jungle. Threats include deforestation and conversion of forests for cultivation
Chagai Chagai Plateau Noakundi	26°25'	65°46'	Semi D. Semi D.	Roberts (1997) Roberts (1997)					
Mekran Mekran	26°00'	63°30'	Semi D.	Roberts (1997)					
Pishin Pishin	30°35'	67°17'	Semi D.	Roberts (1997)					
North West Frontier Province Peshawar Bannu	32°59'	70°36'	Mon. St. F.	Roberts (1997)	North Western Province Kurunegala Elagamuwa	7°59'	80°37'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake; BIS
Peshawar	30°17'	68°03'	Mon. St. F.	Roberts (1997)	Sabaragamuwa Province Ratnapura Udawalawe NP	6°28'	80°53'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in chenna cultivation
Sind Karachi Karachi	24°52'	67°03'	Trop. F.	Roberts (1997)	Southern Province Galle Baddegama Ellakanda Estate	6°10'	80°11'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
					Hambantota Bundata NP	6°12'	81°15'	Trop. F.	IUCN, WCMC & FAO (1997); W.L.D.P.T.S. de A. Goonatilake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Tatera indica* (Hardwicke, 1807) in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
Diulpathana	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in semi-evergreen, scrub jungle. Threats include deforestation, conversion of forests for cultivation
Galwewa	6°19'	81°00'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Hambantota	6°07'	81°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Tissamaharama	6°17'	81°17'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in semi-evergreen, scrub jungle Threats include deforestation, conversion of forests for cultivation.
Yala NP	6°25'	81°30'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Western Province				
Cobombo				
Colpitty	6°53'	79°51'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A.
Goonatilake, BIS				
<i>Kalutara</i>				
Kalutara	6°59'	80°26'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A.
Goonatilake, BIS				
<i>Gampaha</i>				
Aruggoda	6°26'	80°30'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; home gardens. Threats include domestic predators
Handurumulla	7°15'	80°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in forest plantations, home gardens. Threats include deforestation and domestic predators
Mirigama	7°15'	80°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home garden. Threats include domestic predators

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Vandeleuria nolthenii* (Phillips, 1929)**

ENDANGERED

Synonyms: *Vandeleuria nilagirica nolthenii* Phillips, 1929; *Vandeleuria oleracea nolthenii* (Phillips, 1929)

Order: Rodentia

Family: Muridae

Common names: English: Ceylon Highland Tree Mouse, Sri Lankan Highland Tree Mouse; Sinhalese: *Podi-gas-miya*; Tamil: Sund'elli

Taxonomic remarks: Ellerman (1961) and Agrawal and Chakraborty (1980) included this form under *Vandeleuria oleracea* (Bennett, 1832). Corbet and Hill (1992) quoting Musser (1979) treated it as a species by itself separate from *Vandeleuria oleracea* (Bennett, 1832), a trend also accepted by Musser and Carleton (1993) by virtue of its distinct montane distribution, pelage colouration, external and cranial traits

Habit: Nocturnal, arboreal

Habitat: Tropical and subtropical montane evergreen forests

Niche: Montane wet zone, rainforests

Elevation: 1,320-2,310m

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 101-5,000 sq km [Estimated 1,600 sq km, based on inference of areas available between locations currently known to have the species]

Area of Occupancy: 11-500 sq km [Estimated 300 sq km, based on the approximate estimate of areas with likely habitat for the species including the currently known areas]

Locations/subpopulations: 3/2, Unknown

Habitat status: Quantitative and qualitative decrease of the habitat at the rate of < 20% in the last 10 years and a similar trend in the future is predicted due to deforestation for farming and plantations

Threats

Habitat loss and degradation due to expansion of agricultural activities and clear-cutting of the forest

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; estimated; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Sri Lanka *Central Province:* Knuckles FR

Recommendations

Research: Survey, taxonomic studies, life history studies

Management: Monitoring

Conservation measures: *Needed:* Formulation and implementation of Conservation measures action plans at the National level, site-based actions plans for the Protected Areas, research towards monitoring the numbers, trend and range of the population, the status of the habitat, biology and ecology of the species

Captive stocks: None

Comments

No recent sightings

Sources

Phillips, 1980; Srinivasulu and Pradhan, 2003; Phillips, 1935. BIS on species by: W.L.D.P.T.S. de A. Goonatilake

Compilers

W.L.D.P.T.S. de A. Goonatilake S.U. Sarker, C. Srinivasulu, M.S. Pradhan, Y.P. Sinha, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: W.L.D.P.T.S. de A. Goonatilake

Recent Field Studies

None

Locations from where *Vandeleuria nolthenii* (Phillips, 1929) is known in Sri Lanka



Distribution of *Vandeleuria nolthenii* (Phillips, 1929) (Endemic to Sri Lanka) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
SRI LANKA				
Central Province				
Matale	7°34'	80°42'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Gammaduwa	7°06'	80°51'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Mulhalkelle				
Nuwara Eliya				
Ohiya	6°49'	80°50'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in West Haputale

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Vandeleuria oleracea (Bennett, 1832)

LEAST CONCERN in South Asia

Synonyms: *Mus oleraceus* Bennett, 1832; *Mus dumeticola* Hodgson, 1845; *Mus povensis* Hodgson, 1845; *Mus nilagiricus* Jerdon, 1867; *Vandeleuria oleracea marica* Thomas, 1914; *Vandeleuria oleracea modesta* Thomas, 1914; *Vandeleuria rubida* Thomas, 1914; *Vandeleuria oleracea rubida* (Thomas, 1914); *Vandeleuria oleracea spadicea* Ryley, 1914; *Vandeleuria wroughtoni* Ryley, 1914

Order: Rodentia

Family: Muridae

Common names: English: Long-tailed Tree Mouse; Nepalese: *Lampuchre Musa*; Sinhalese: *Kosatta-Miya*, *Podi-gas-Miya*; Tamil: *Sund'elli*

Taxonomic remarks: Ellerman (1961) listed seven subspecies. Corbet and Hill (1992) list three probable subspecies, namely *Vandeleuria oleracea spadicea* Ryley, 1914, *Vandeleuria oleracea modesta* Thomas, 1914 and *Vandeleuria oleracea marica* Thomas, 1914 from this region. The last subspecies was synonymised earlier by Ellerman (1961) to *Vandeleuria oleracea dumeticola* (Hodgson, 1845). Recently, Agrawal (2000), while synonymising most of the earlier mentioned subspecies, retained only two valid subspecies, namely *Vandeleuria oleracea oleracea* (Bennett, 1832) and *Vandeleuria oleracea dumeticola* (Hodgson, 1845) from the region
Habit: Mostly nocturnal, sometimes diurnal, arboreal
Habitat: Tropical dry deciduous forests, tropical dry deciduous forests with bamboo brakes, subtropical dry deciduous forests; tropical moist deciduous forest, subtropical moist deciduous forest, temperate forest, open forests interspersed with grasslands and scrub. Low country wet forest, low country dry forest, montane wet zone, low country rain forest, montane rain forest

Niche: Deciduous forests, c. 100m from streams, with bamboo, tree hollows, crack and crevices in trees

Elevation: 200-1,500m [In Sri Lanka: up to 2,310m]

Distribution

Global: Bangladesh, Bhutan, China, India, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam

South Asia: Bangladesh, Bhutan, India, Nepal, Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bangladesh < 20,000; Bhutan not known; India > 20,000; Nepal > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh < 2,000; Bhutan not known; India > 2,000; Nepal > 2,000; Sri Lanka 900]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Qualitative and quantitative decrease of the habitat at the rate of < 20% in 10 years both in the past and in the future due to deforestation

Threats

Habitat loss and degradation due to expansion of agriculture, human encroachment, grazing by livestock, illicit wood cutting, increase of urban areas, mining, stone quarrying, small-scale logging, lopping, accidental mortality due to drowning, poisoning for hunting for local consumption purposes, presence of wild and domestic predators

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown. In Maharashtra, India some populations are contiguous while some are fragmented

Data source

Field study, museum specimens, Informal sightings, literature; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bangladesh: Least Concern

Bhutan: Data Deficient

Rationale: Exact location not known

India: Least Concern

Nepal: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation:

Bangladesh: None

Bhutan: None

India: Schedule V of the Indian Wildlife (Protection) Act, 1972, amended upto 2002

Nepal: None

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Eturnagaram WS, Gundla Brahmeshwaram

Metta WS, Nagarjunasagar Srisailem TR, Pocharam WS

Karnataka: Bannerghatta NP

Kerala: Eravikulam NP

Maharashtra: Sanjay Gandhi NP

Sri Lanka

Central Province: Knuckles FR

Recommendations

Research: Survey studies, life history

Management: Monitoring

Captive stocks: None

Comments

In Bangladesh, this species has been recorded from tropical mangrove forested tracts of Sunderbans

Sources

Agrawal, 2000; Ellerman, 1961; Ellerman and Morrison-Scott, 1951; Shreshta, 1997; Phillips, 1980; Sarker and Sarker, 1988; Srinivasulu, and Pradhan 2003; Chakraborty *et al.*, 2004; Ellerman & Morrison-Scott, 1951; Phillips, 1932, 1935, IUCN, WCMC and FAO, 1997. BIS on species by : C. Srinivasulu and Bhargavi Srinivasulu, G.A. Jathar, K. Shenoy, P. Neelanarayanan, P. Padmanabhan, W. L. D. P. T. S. de A. Goonatilake

Compilers

S.U. Sarker, M.S. Pradhan, Y.P. Sinha, T.P. Bhattacharyya, S.S. Talmale, Shomita Mukherjee, J. Thapa, G. Amori, C. Rondinini, M. Siliwal

Reviewers: T.P. Bhattacharyya, W. L. D. P. T. S. de A. Goonatilake; M.S. Pradhan, C. Srinivasulu

Recent Field Studies

Girish Jathar, Toranmal Reserve Forest, Maharashtra, 2001-2003, Ecological studies of the forest owl
Neelananarayanan, P., Mannampandal, Nagapattinam District, Tamil Nadu, 1994, General rodent study/Survey
Easa *et al.*, Western Ghats, Kerala, 1995, Survey of Small Mammals
Karthik Shankar and R. Sukumar, Upper Bhavani and vicinity, 1994-1196, Community structure of small mammals
Srinivasulu, C. and Bhargavi Srinivasulu, Throughout Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh
Srinivasulu, C., Nagarjunasagar Srisailam Tiger Reserve and Gundla Brahmeshwaram Wildlife Sanctuary, 1996 onwards, Biodiversity of Nagarjunasagar Srisailam Tiger Reserve and Gundla Brahmeshwaram Wildlife Sanctuary in the Nallamala Hills, Andhra Pradesh
Sanjay Molur, 2003-ongoing, Distribution and status of rodents in Coorg Western Ghats

Locations from where *Vendeleuria oleracea* (Bennett, 1832) is known in Bangladesh, Bhutan, India, Nepal and Sri Lanka



Distribution of *Vandeleuria oleracea* (Bennett, 1832) in South Asia (Bangladesh, Bhutan, India, Nepal and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH				
Sunderbans ? Locality	-	-	Mang. F. Sarker and Sarker (1988)	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram WS
BHUTAN				
? Locality	-	-	Srinivasulu and Pradhan (2003)	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram WS
INDIA				
Andhra Pradesh				
Cuddapah	14°25'	78°45'	Trop. F. Agrawal (2000)	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes; in Nagarjunasagar Srisaillam TR
Cuddapah	-	-	Trop. F. Agrawal (2000); Chakraborty <i>et al.</i> (2004)	
Balapalli Hills	15°58'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes; in Nagarjunasagar Srisaillam TR
Kurnool	15°52'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes; in Nagarjunasagar Srisaillam TR
Pecheruvu	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Pecheruvu (15°58' N & 78°49' E); in Nagarjunasagar Srisaillam TR
Thummalabailu	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near Pecheruvu (15°58' N & 78°49' E); in Nagarjunasagar Srisaillam TR
Mahubnagar Farahabad	16°17'	78°41'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Mannanur	16°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Nagarjunasagar Srisaillam TR
Medak	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Medak (17°45' N & 78°15' E); in Pocharam WS
Dantepalli	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; north of Medak (17°45' N & 78°15' E); in Pocharam WS
Medak	17°45'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Agrawal's (2000) record might be from the forested tract outside Medak town (C. Srinivasulu, pers comm.)
Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Prakasam	15°32'	80°14'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram WS
Gundla Brahmeshwaram Temple	15°35'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram WS
Isukagundam	15°44'	78°47'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; in Gundla Brahmeshwaram WS
Maddipenta	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest. North of Pasra (18°12' N & 80°10' E) in Etumagaram WS
Warnagal Venkatapuram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest. North of Pasra (18°12' N & 80°10' E) in Etumagaram WS
Arunachal Pradesh				
Lohit	28°40'	96°10'	Trop. F.	Agrawal (2000)
Mishmi Hills	26°20'	91°15'	Trop. F.	Ellerman and Morrison-Scott (1951)
Assam				
Kamrup	24°10'	72°26'	Trop. F.	Agrawal (2000)
Kamrup	20°45'	73°45'	Trop. F.	Agrawal (2000)
Gujarat				
Banaskantha Palanpur	21°15'	70°20'	Trop. F.	Agrawal (2000)
Dangs	20°55'	73°03'	Trop. F.	Agrawal (2000)
Dangs	-	-	Trop. F.	Agrawal (2000)
Junagadh	29°10'	75°45'	Trop. F.	Agrawal (2000)
Junagadh	-	-	Trop. F.	Agrawal (2000)
Surat	-	-	Trop. F.	Agrawal (2000)
Surat	-	-	Trop. F.	Agrawal (2000)
Haryana				
Dher	-	-	Trop. F.	Agrawal (2000)
Hissar	-	-	Trop. F.	Agrawal (2000)
Hissar	-	-	Trop. F.	Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Vandeleuria oleracea* (Bennett, 1832) in South Asia (Bangladesh, Bhutan, India, Nepal and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia		Habitat		Notes / Sources		Distribution in South Asia		Habitat		Notes / Sources	
Lat.	Long.			Lat.	Long.			Lat.	Long.		
Himachal Pradesh											
Kalka								Nimar			
Kalka	30°54'	76°56'	Mon. St. F.			Agrawal (2000)		Nimar	21°45'	76°35'	Trop. F. Agrawal (2000)
Sirmaur								Sehore			
Sirmaur	30°45'	77°30'	Mon. St. F.			Agrawal (2000)		Sehore	23°12'	77°08'	Trop. F. C. Srinivasulu (pers. comm.)
Jharkhand											
Hazaribagh								Seoni			
Hazaribagh	24°00'	80°15'	Trop. F.			Agrawal (2000)		Seoni	22°05'	79°32'	Trop. F. C. Srinivasulu (pers. comm.)
Paschim Singbhum								Maharashtra			
Chaibassa	22°34'	85°49'	Trop. F.			Agrawal (2000)		Berar	-	-	Trop. F. Agrawal (2000)
Karnataka											
Bangalore								Mumbai			
Shivanahalli	-	-	Trop. F.			K. Shenoy, BIS		Sanjay Gandhi NP	-	-	Trop. F. Yazdani <i>et al.</i> (1992)
Dharwar								Nandubār			
Dharwar	15°30'	75°20'	Trop. F.			Agrawal (2000)		Toranmal RF	21°47'	74°28'	Trop. F. G.A. Jathar, BIS. Elevation: 400-550m, in Satpura Range
Kodagu								Nasik			
Coorg	12°25'	75°45'	Trop. F.			Pradhan & Kurup (2001); Molur S. and Molur P. (Pers.obs) Jan 2005		Nasik	20°13'	74°05'	Trop. F. Agrawal (2000)
Mysore								Pune			
Mysore	12°18'	76°30'	Trop. F.			Agrawal (2000)		Poona	18°32'	73°52'	Trop. F. Agrawal (2000)
Kerala											
Idduki								Thane			
Eravikulam NP	-	-	Trop. F.			Pradhan (2002) opine its possible occurrence		Colaba	18°55'	72°49'	Trop. F. Agrawal (2000)
Madhya Pradesh											
Balaghat								Manipur			
Balaghat	21°48'	80°12'	Trop. F.			Agrawal (2000)		Bishnupur			
								Bishnupur	24°38'	93°46'	Trop. F. Agrawal (2000)
Maiwa								Imphal			
Maiwa	24°00'	76°00'	Trop. F.			Agrawal (2000)		Booribazar	24°44'	93°50'	Trop. F. Agrawal (2000)
								Tamenglong			
								Tamenglong	24°58'	93°33'	Trop. F. Mandal <i>et al.</i> (2004)
								Meghalaya			
								Jaintia Hills			
								Jaintia Hills	25°20'	92°40'	Trop. F. Agrawal (2000)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Vandeleuria oleracea* (Bennett, 1832) in South Asia (Bangladesh, Bhutan, India, Nepal and Sri Lanka) from literature and recent field studies. ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Mizoram									
Aizawl	23°44'	92°43'	Trop. F.	Agrawal (2000)	Salem	12°00'	78°00'	Trop. F.	S. Chakraborty and C. Srinivasulu (pers. comm.)
Aizawl									
Lunglei	22°53'	92°44'	Trop. F.	Agrawal (2000)	Uttaranchal				
Lunglei					?Almora	29°50'	79°30'	Temp. F.	Agrawal (2000)
Nagaland					Kumaon				
Tuensang	26°00'	95°00'	Trop. F.	Agrawal (2000)	West Bengal				
Naga Hills					Bharnabavi	-	-	Trop. F.	Ellerman (1961)
Orissa					Darjiling	26°45'	89°21'	Trop. F.	Agrawal (2000)
Puri	-	-	Trop. F.	Agrawal (2000); near Puri	Hashimara				
Harishankar	19°48'	85°51'	Trop. F.	Agrawal (2000)	Puruliya	23°20'	86°25'	Trop. F.	S. Chakraborty (pers. comm.)
Puri					Puruliya				
Punjab					NEPAL				
Jalandhar	31°19'	75°34'	Trop. F.	Agrawal (2000)	Gora Pani	-	-	Mon. St. F.	Shreshita (1997)
Jalandhar									
Rajasthan					Central Nepal				
Alwar	27°30'	76°30'	Semi D.	Agrawal (2000)	Royal Chitwan NP	27°35'	84°20'	Mon. St. F.	Shreshita (1997)
Alwar					Katmandu	27°45'	85°25'	Mon. St. F.	Shreshita (1997)
Sirohi	24°36'	72°42'	Semi D.	Agrawal (2000)	Sindhu Palchok	27°55'	85°45'	Mon. St. F.	Shreshita (1997)
Mount Abu	25°07'	73°10'	Semi D.	Agrawal (2000)					
Bisalpur					SRI LANKA				
Sri Ganganagar	29°55'	73°53'	Semi D.	Agrawal (2000)	Central Province				
Sri Ganganagar					Kandy	7°12'	80°40'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Tamil Nadu					Deltota	7°13'	80°40'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Nagapattinam	-	-	Trop. F.	P. Neelanarayanan, BIS	Galaha	7°24'	80°48'	Trop. F.	IUCN, WCMC & FAO (1997)
Mannampandal	-	-	Trop. F.	P. Neelanarayanan, BIS	Knuckles FR	7°06'	80°51'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Mayiladuthurai					Kumbalgamuwa				
Nilgiris	11°21'	76°49'	Trop. F.	Agrawal (2000)					
Coonoor	11°24'	76°42'	Trop. F.	Agrawal (2000)	Matale				
Ootacamund					Gammaduwa	7°34'	80°42'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Salem and Dharmapuri	11°50'	78°16'	Trop. F.	Agrawal (2000)					
Shevaroy Hills									

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Distribution of *Vandeleuria oleracea* (Bennett, 1832) in South Asia (Bangladesh, Bhutan, India, Nepal and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
Muhaikelle	7°05'	80°51'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
North Eastern Province				
Mannar				
Marichchukkadi	8°35'	79°56'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Southern Province				
Hambantota	6°19'	81°00'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS. Threats include forest clearance for cultivation
Gal Wewa				
Uva Province				
Badulla	6°56'	81°07'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake BIS
Namunukula				
Welimada	6°54'	80°53'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake BIS
Monaragala				
Nilgala	7°11'	81°22'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake BIS; in tropical deciduous forest
Western Province				
Kalutara				
Kalutara	6°34'	79°57'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Matugama	6°31'	80°06'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Platacanthomys lasiurus* Blyth, 1859**

VULNERABLE

Synonyms: None

Order: Rodentia

Family: Platacanthomyidae

Common names: English: Malabar Spiny Dormouse

Taxonomic remarks: None

Habit: Nocturnal, sometimes diurnal, arboreal

Habitat: Tropical deciduous forests, tropical evergreen forests, subtropical deciduous forests

Niche: Prefers undisturbed patches of moist evergreen forests. Prepares nests in holes of large trees. Habitat specialist

Elevation: 600-2,000m

Distribution

Global: Endemic to India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: 501-2000 sq km [Based on the approximate estimate of areas with likely habitat (that of evergreen patches in Western Ghats: Peppara WS - 50 sq km; Kalakkad Mundanthurai TR - 20 sq km; Coorg - 20km; Shimoga - < 20 sq km; Upper Bhavani - 10 sq km: Total - 590 sq km) for the species including the currently known areas]

Locations/subpopulations: 15/10, Fragmented [Severely fragmented habitat (vide French Institute's Report on the status of evergreen forests in Western Ghats)]

Habitat status: Quantitative and qualitative decrease in habitat at the rate of >30% in the last 20 years and a future decrease at the rate of >10% in the next ten years is predicted due to changes in habitat as this species is sensitive to habitat changes

Threats

Habitat loss and degradation due to expansion of coffee and tea plantations, agro-industry based farming activities, mortality due to pest control practices as it is considered as a pest of cardamom, pepper and jackfruit plantation, and forest fires

Trade: Harvested for medicinal properties and local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown. Very common in good habitats

Data source

Field study, museum specimens, informal sightings, literature; observed; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE B2ab(ii,iii)**

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Kerala:

Eravikulam NP, Periyar TR, Peppara WS, Silent Valley NP

Tamil Nadu: Indira Gandhi WS, Kalakkad Mundanthurai TR, Mudumulai WS, Mukurthi NP

Recommendations

Research: Survey studies, limiting factor studies

Management: Habitat management

Conservation measures: *Needed*: Formulation and implementation of management action plans at the national level, site-based action plans for restoration, Conservation measures and maintenance of the preferred habitat of the species

Captive stocks: None

Comments

As new projects are going on in KFRI (2002-2005), new locations such as Palapilly, Trichur district is identified (P. Padmanabhan, *pers. comm.*)

Sources

Agrawal, 2000; Ganesh, 1997; Srinivasulu and Pradhan, 2003

Compilers

A.K. Chakravarthy, Shomen Mukherjee, S.S. Saha, Meena Venkataraman

Reviewers: Meena Venkataraman, P.O. Nameer

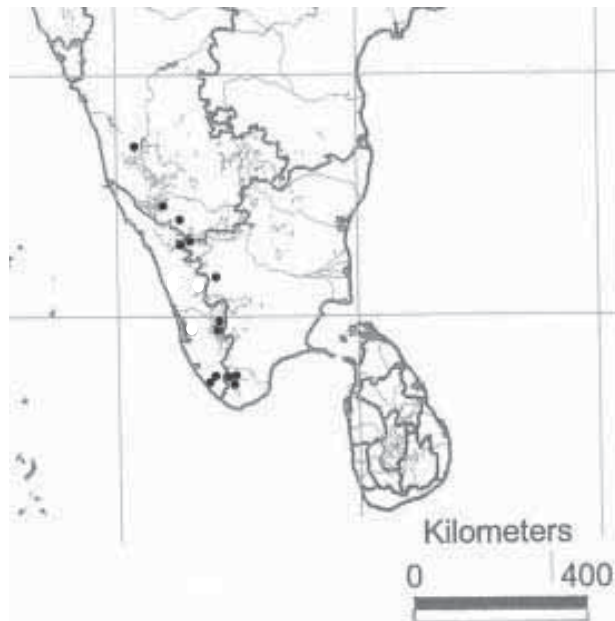
Recent Field Studies

Jayson, E.A. and Christopher & Peppara Wildlife Sanctuary, Thiruvananthapuram, 1994-95, small mammals survey in Peppara Wildlife Sanctuary

Easa, P.S., James Zacharia and Padmanabhan, P. (1993-1998), Western Ghats of Kerala, 1993-1998, Survey of small mammals

M. Venkataraman in Benne, Mudumalai Wildlife Sanctuary, Tamil Nadu, small mammals study.

Locations from where *Platacanthomys lasiurus* Blyth, 1859 is known in India



Distribution of *Platacanthomys lasiurus* Blyth, 1859 (Endemic to India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Karnataka				
? location	-	-	Trop. F.	Agrawal (2000); Mysore-Kanara border
Shimoga	13°56'	75°31'	Trop. F.	Rajagopalan (1968); Agrawal (2000)
Shimoga				
Kodagu				
S. Coorg (?)	-	-	Trop. F.	Agrawal (2000); Pradhan & Kurup (2001); could be Virajendrapet (C. Srinivasulu, pers. comm.)
Kerala				
Idukki				
Eravikulam NP	-	-	Trop. F.	Pradhan (2002); in shola near Bhimanada tank in Peechi-Vazhani WS
Thiruvananthapuram				
Peppara WS	-	-	Trop. F.	Jayson & Christopher (1995); Agrawal (2000)
Kannur Aralam WS	-	-	Ever. F.	Nameer, Rari, Visa and Roby Feb, 2005.
Tiruvananthapuram	8°30'	76°54'	Trop. F.	Agrawal (2000)
Tamil Nadu				
Coimbatore				
Indira Gandhi WS	10°35'	76°56'	Trop. F.	Prabhakar (1997)
Nilgiris				
Benne	11°37'	76°34'	Trop. F.	Venkataraman (2001); semi evergreen forests in Mudumalai WS. Threats include spread of plantations to adjoining areas
Upper Bhavani	11°27'	77°41'	Trop. F.	Shanker (1996); Pradhan & Kurup (2001)
Tirunelveli				
Bonnakadu	-	-	Trop. F.	Webb-Peploe (1947); in Kalakad-Mundhanthurai TR (c. 8°30' N & 77°34' E)
Kakachi	-	-	Trop. F.	Ganesh (1997); Mudappa (2001); in Kalakad-Mundhanthurai TR (c. 8°30' N & 77°34' E)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Belomys pearsonii* (Gray, 1842)**

VULNERABLE in South Asia

Synonyms: *Sciuropetrus villosus* Blyth, 1847; *Sciuropetrus pearsonii* Gray, 1842; *Trogopterus pearsonii* (Gray, 1842); *Belomys trichotis* Thomas, 1908; *Belomys pearsonii trichotis* (Thomas, 1908); *Trogopterus pearsonii trichotis* (Thomas, 1908)

Order: Rodentia

Family: Sciuridae

Common names: English: Hairy-footed Flying Squirrel

Taxonomic remarks: Ellerman (1940, 1961) and Hoffmann *et al.* (1993) included this taxon under *Belomys* Thomas 1908, while Corbet and Hill (1992) included it under *Trogopterus* Heude, 1898

Habit: Nocturnal, arboreal

Habitat: Temperate and subtropical dry deciduous forests

Niche: Tree hollows dense broad leaved forest patches and also in rock crevices

Elevation: 1,500-2,400m

Distribution

Global: Bhutan, China, India, Myanmar, Nepal, Taiwan

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan not known; India > 20,000; Nepal < 5,000]

Area of Occupancy: > 2,001 sq km [Bhutan not known; India > 2,000; Nepal < 500]

Locations/subpopulations: 8/6, Fragmented

Habitat status: Quantitative and qualitative decrease in up to 50% of habitat in past 5 years and similar rate predicted for the next 5 years due to habitat loss because of shifting cultivation and tree felling

Threats

Shifting (jhum) cultivation, forest fires, monoculture plantations, and hunting

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Declining < 10% in 5 years. Predicted decline > 30% in next 10-20 years.

Data source

Field studies, literature, museum specimen; hypothetical; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE in South Asia A3c+4c**

Rationale: In the South Asian region, there is a continuing decline in population due to major threats over the last one generation. Predicted decline at a higher rate over the next three generations. Since there are similar threats in the neighbouring region, the threat category has been retained.

National Status (IUCN Ver. 3.0)

Bhutan: **Data Deficient**

Rationale: Not much is known about this species in Bhutan except an unknown site record

India: Vulnerable A3c+4c

Rationale: In the country, there is a continuing decline in population due to major threats over the last one generation. Predicted decline at a higher rate over the next three generations. Since there are similar threats in the neighbouring region, the threat category has been retained.

Nepal: Endangered B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat quality.

Wildlife Legislation:

Bhutan: None

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Pakhui WS

Mizoram: Nengpui WS

Nepal

Central Nepal: Royal Chitwan NP

Recommendations

Research: Survey

Management: Habitat management, public awareness

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Mandal *et al.* 2000; Mandal *et al.* 2004; Mishra *et al.*, 2004; Srinivasulu *et al.*, 2004; Mandal *et al.* (in pres)

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

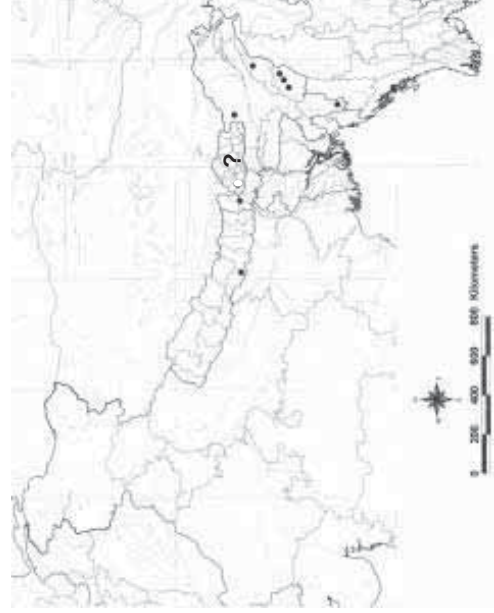
None

Distribution of *Belomys pearsonii* (Gray, 1842) in South Asia (India and Nepal) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA				
Arunachal Pradesh				
East Kameng Pakhui WS	26°54' to 27°16'	92°36' to 93°09'	Mon. St. F.	A. Datta (pers. comm.)
West Kameng Mago Chu Valley	27°36'	92°02'	Mon. St. F.	Mishra <i>et al.</i> (2004)
Manipur				
Senapati Machi Turibari	-	-	Trop. F. Trop. F.	Ellerman (1961) Mandal (2004a)
Tamenglong Tamenglong	24°58'	93°33'	Mon. St. F.	Mandal (2004a)
Mizoram				
Chimtuipui Chimtuipui	-	-	Trop. F.	Mandal (2004b); in Nengpui WS
Nagaland				
Tuensang Naga Hills	26°15'	96°15'	Mon. St. F.	Ellerman (1961)
Sikkim				
West Sikkim Sombare (?)	-	-	Trop. F.	Ellerman (1961)
West Bengal				
Darjiling Darjiling	26°45'	88°15'	Trop. F.	Ellerman (1961)
NEPAL				
Central Nepal				
Royal Chitwan NP	27°35'	84°20'	Trop. F.	Shrestha (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon. G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Belomys pearsonii* (Gray, 1842) is known in Bhutan, India and Nepal



***Biswamoyopterus biswasi* Saha, 1981**

CRITICALLY ENDANGERED

Synonyms: None

Order: Rodentia

Family: Sciuridae

Common names: English: Namdapha Flying Squirrel

Taxonomic remarks: See Srinivasulu *et al.* (2004).

Habit: Crepuscular, arboreal

Habitat: Subtropical dry deciduous montane forests

Niche: Moist forest tracts along the streams

Elevation: Unknown

Distribution

Global: Endemic to India

Extent of Occurrence: < 100 sq km [Estimated 30 sq km; based on inference of area from where the species was recorded]

Area of Occupancy: < 100 sq km [Estimated <30 sq km; based on the approximate estimate of the suitable habitat]

Locations/subpopulations: 2/1, Contiguous; all individuals in one population

Habitat status: Qualitative decrease in habitat due to natural calamities such as landslides and flood

Threats

Natural calamities and also possibly harvested by locals

Trade: Harvest for food by locals

Population

Generation time: Unknown

Total population: < 50 individuals

Mature individuals: < 50 individuals

Population trend: Unknown

Data source

Informal sightings, literature, museum specimen; estimated; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **CRITICALLY ENDANGERED**

B1ab(iii); D

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. Number of mature individuals highly restricted.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, life history

Management: Monitoring, PHVA is recommended

Captive stocks: None

Comments

This species is restricted to type locality only in the adjacent slopes of a particular valley and the EoO is less than 100 sq km. It was believed there were no recent sightings until three specimens were seen at Deban and one at Haldibari on 23 and 24 December 2002 by a Swiss birdwatcher in

Namdapha (Ritschard, 2003)

Sources

Mishra *et al.*, 2004; Saha, 1981; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: S.S. Saha, C. Srinivasulu

Recent Field Studies

None

Locations from where *Biswamoyopterus biswasi* Saha, 1981 is known in India



Distribution of *Biswamoyopterus biswasi* Saha, 1981 (Endemic to India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang Deban	-	-	Mon.	Srinivasulu <i>et al.</i> (2004); in Namdapha NP (27°23' to 27°39' N & 96°15' to 96°58' E)
Haldibari	-	-	St. F. Mon. St. F.	Saha (1981); Srinivasulu <i>et al.</i> (2004); in Namdapha NP (27°23' to 27°39' N & 96°15' to 96°58' E)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Callosciurus erythraeus* (Pallas, 1799)**

LEAST CONCERN in South Asia

Synonyms: *Sciurus erythraeus* Pallas, 1799; *Sciurus caniceps* Gray, 1842; *Callosciurus caniceps* (Gray, 1842); *Sciurus erythrogaster* Blyth, 1842; *Macroxus punctatissimus* Gray, 1867; *Sciurus gordonii* var. *intermedia* Anderson, 1879; *Callosciurus erythraeus bhutanensis* Bonhote, 1901; *Callosciurus erythraeus nagarum* Thomas, 1916; *Callosciurus castaneiventis aquilo* Wroughton, 1921; *Callosciurus crumpi* Wroughton, 1921; *Callosciurus erythraeus wellsi* Wroughton, 1921

Order: Rodentia

Family: Sciuridae

Common names: English: Pallas' Squirrel, Red-bellied Squirrel

Taxonomic remarks: Ellerman (1961) included nine subspecies that also included forms from Myanmar. Chakraborty (1985) reviewed genus *Callosciurus* Gray, 1867 in detail. Ellerman and Morrison-Scott (1951), and Ellerman (1961) included *Callosciurus crumpi* Wroughton, 1916 under *Callosciurus caniceps* (Gray, 1842) that later, on the basis of its intergradation, was synonymised with *Callosciurus erythraeus* (Pallas, 1779) by Corbet and Hill (1992). Corbet and Hill (1992) include in detail all probable and possible names of this species and indicate that forms from Bhutan and northeastern India belong to *Callosciurus erythraeus erythraeus* (Pallas, 1779)

Habit: Diurnal, arboreal

Habitat: Subtropical montane evergreen and broad leaved forests

Niche: Tree hollows in mid high canopy of dense broad leaved forest patches

Elevation: 200-2,000m

Distribution

Global: Bangladesh, Bhutan, China, India, Malaysia, Myanmar, Taiwan, Thailand

South Asia: Bangladesh, Bhutan, India

Extent of Occurrence: > 20,000 sq km [Bangladesh < 20,000; Bhutan < 20,000; India >20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh < 2,000; Bhutan < 2,000; India > 2,000]

Locations/subpopulations: Many/10, Contiguous

Habitat status: Declining due to deforestation, jhuming, encroachments, human activities

Threats

Shifting cultivation, selective logging, forest fires and hunting

Trade: For local consumption

Population

Generation time: Unknown

Total population: >10,000

Mature individuals: >10,000

Population trend: Declining

Data source

Field studies, informal sightings, indirect information, literature, museum specimen; inferred; observed; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bangladesh: Vulnerable ↓ Near Threatened

B1ab(iii)+2ab(iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in Bangladesh. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Bhutan: Vulnerable ↓ Near Threatened

B1ab(iii)+2ab(iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in Bhutan. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

India: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India Arunachal Pradesh: Eagle's Nest WS, Kamlang WS, Namdapha NP, Pakhui WS & NP, Sessa Orchid Sanctuary, Tale Valley WS

Recommendations

Research: Survey, life history, trade

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty, 1985; Mandal *et al.*, 2000; Mishra *et al.*, 2004; Sarker and Sarker, 1988; Srinivasulu *et al.*, 2004; Khan, 1982; Chakraborty, 1975; BIS on species by: A. Datta

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: S. Chakraborty

Recent Field Studies

Aparajita Datta, Changlang, Tirap and Lohit Districts, Arunachal Pradesh, 2002-2003, Hunting survey and Mammal survey

Aparajita Datta, Lower Subansiri and Papumpare Districts, 1999, Short field visit

Aparajita Datta, East Kameng and Changlang Districts, 1997-2000, Study on Hornbill ecology

Aparajita Datta, East and West Kameng Districts, 1995-1996, Impact of logging on squirrels and primates

T.R. Shankar Raman, Mizoram, 1994-1995, Impact of shifting cultivation on Birds

Locations from where *Callosciurus erythraeus* (Pallas, 1799) is known in Bangladesh, Bhutan and India



Distribution of *Callosciurus erythraeus* (Pallas, 1799) in South Asia (Bangladesh, Bhutan and India) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Sylhet Chittagong	22°21'	91°48'	Trop. F.	Khan (1982); Chakraborty (1985); Sarker and Sarker (1988)	Siang Namorah	-	-	Mon. St. F. Trop. F.	habitat loss to plantations and encroachments
Sylhet	24°32'	91°52'	Trop. F.	Khan (1982); Chakraborty (1985); Sarker and Sarker (1988)					
BHUTAN									
Central Bhutan Gaylagphug	-	-	Mon. St. F.	Chakraborty (1975); alt. 153m	Pakhui WS	26°54' to 27°16'	92°36' to 93°09'	Mon. St. F.	Mishra <i>et al.</i> (2004); A. Datta, BIS; foothill forest. Over 400 sightings in forests contiguous with Nameri, Eagle's Nest and other RFs. Threats include hunting, snaring
East Bhutan Mithangar	-	-	Mon. St. F.	Chakraborty (1975); alt. 1,525m	Seijusa	27°10'	92°50'	Mon. St. F. Trop. F.	A. Datta, BIS; alt. 200-2000m. Threats include tree cutting, logging, hunting, and snaring
West Bhutan Phuntsholing	-	-	Mon. St. F.	Chakraborty (1975); alt. 610m	Lohit Kamlang WS And Turung RF	27°40' to 28°00'	96°20' to 96°55'	Mon. St. F.	A. Datta, BIS; Threats include hunting, snaring, logging
Putlibir	-	-	Mon. St. F.	Chakraborty (1975); alt. 2,103m					
INDIA									
Arunachal Pradesh									
Changlang Jairampur Forest Division	27°00' to 27°40'	95°00' to 97°00'	Mon. St. F. Trop. F.	A. Datta, BIS; also sighted at Pansgu, Honkap, Rima, Kathang, Namgol RF. Threats include hunting, snaring	Lower Subansiri Monipoliyang-Pange-Tale Valley	-	-	Mon. St. F. Temp. F.	A. Datta, BIS; Threats include hunting, snaring, tree felling
Namdapha NP	27°23' to 27°39'	96°15' to 97°58'	Mon. St. F. Trop. F.	A. Datta, BIS; Mishra <i>et al.</i> (2004). Generally all over Deban, Haldibari, Hornbill, Bulbulia, Firm Base (alt. 200-900m), Miao-Vijayanagar Road (alt. 200-1,300m), Miao RF; contiguous with Kamlang WS. Threats include hunting and snaring	Papumpare Chessa	-	-	Mon. St. F.	A. Datta, BIS; Degraded forest; alt. 200-500m. Threats include hunting, snaring, logging, tree cutting and encroachment
East Karmeng Giladhar	-	-	Mon. St. F. Trop. F.	A. Datta, BIS; habitat degraded and disturbed; alt. 200-500m. Threats include tree cutting, logging, hunting, snaring, habitat loss to plantations and encroachments	Siang Pashighat	-	-	Mon. St. F.	Chakraborty (1985)
Monai	26°45'	92°11'	Mon. St. F.	A. Datta, BIS; habitat degraded and disturbed; alt. 200-500m. Threats include tree cutting, logging, hunting, snaring.	Tirap Deomali	-	-	Mon. St. F.	Chakraborty (1985)
					Borduria	27°02'	95°29'	Mon. St. F.	A. Datta, BIS; Degraded foothill forest, scub secondary forest, bamboo. Threats include hunting, snaring, habitat loss to jhum cultivation, tea estates and logging
					Mopaya	-	-	Mon. St. F.	A. Datta, BIS; Degraded foothill forest, scub, secondary forest, bamboo.

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Callosciurus erythraeus* (Pallas, 1799) in South Asia (Bangladesh, Bhutan and India) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Nakfan	-	-	Mon. St. F.	Threats include hunting, snaring, habitat loss to jhum cultivation, tea estates and logging A. Datta, BIS; Degraded foothill forest, scrub, secondary forest, bamboo brake.	Jaintia Hills Jowai	25°27'	92°12'	Trop. F.	Chakraborty (1985)
Namsangmukh	-	-	Mon. St. F.	Threats include hunting, snaring, habitat loss to jhum cultivation, tea estates and logging A. Datta, BIS; Degraded foothill forest, scrub, secondary forest, bamboo brake.	East Khasi Hills Nongpoh	25°54'	91°53'	Trop. F.	Chakraborty (1985)
Rujen	-	-	Mon. St. F.	Threats include hunting, snaring, habitat loss to jhum cultivation, tea estates and logging A. Datta, BIS; Degraded foothill forest, scrub, secondary forest, bamboo brake.	Shillong Mizoram Lunglei Sairap	25°34'	91°53'	Trop. F.	Chakraborty (1985)
West Kameng Doimara RF	26°59'	92°24'	Mon. St. F. Trop. F.	Threats include hunting, snaring, habitat loss to jhum cultivation, tea estates and logging A. Datta, BIS; Degraded foothill forest. At Tipi and Pagla Nala; alt. 200-800m.	Nagaland Tuensang East Naga Hills	22°49'	92°49'	Trop. F.	Mandal <i>et al.</i> (2000)
Eagle's Nest WS	27°14'	92°46'	Mon. St. F.	Threats include hunting, snaring, tree cutting and logging A. Datta, BIS; Degraded foothill forest; alt. 200-1,500m.	Wokha Samogooting	25°45'	93°45'	Mon. St. F.	Chakraborty (1985)
Sessa	-	-	Mon. St. F. Trop. F.	Threats include hunting, snaring, habitat loss to jhum cultivation, tea estates and logging A. Datta, BIS; alt. 1,000m. Mossy cloud-covered forest. Threats include hunting and snaring	Sikkim ? East Sikkim Sedenchon	-	-	Mon. St. F.	Chakraborty (1985)
Assam Kamrup Rajapara	-	-	Trop. F.	Chakraborty (1985)	Tripura Dhalai Ambassa	23°55'	90°50'	Trop. F.	Chakraborty (1985)
Lakhimpur Digboi	-	-	Trop. F.	Chakraborty (1985)	North Tripura Ganganagar	-	-	Trop. F.	Chakraborty (1985)
Manipur ? Location	-	-	-	Chakraborty (1985)	South Tripura Garjee	-	-	Trop. F.	Chakraborty (1985)
Meghalaya Garo Hills Chilpara	-	-	Trop. F.	Chakraborty (1985)	West Tripura Teliamura	-	-	Trop. F.	Chakraborty (1985)
Garo Hills	25°30'	90°30'	Trop. F.	Chakraborty (1985)					
Roonrengiri	-	-	Trop. F.	Chakraborty (1985)					
Tura	25°31'	90°15'	Trop. F.	Chakraborty (1985)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Callosciurus pygerythrus* (I. Geoffroy Saint-Hillaire, 1831) LEAST CONCERN in South Asia**

Synonyms: *Sciurus pygerythrus* I. Geoffroy Saint-Hillaire, 1831; *Sciurus lokroides* Hodgson, 1836; *Sciurus assamensis* (nom. nud.) Gray ex M'Clelland, 1843; *Sciurus blythi* Tytler, 1845; *Macroxus similis* Gray, 1867; *Sciurus stevensi* Thomas, 1908

Order: Rodentia

Family: Sciuridae

Common names: English: Hoary-bellied Squirrel, Irrawady Squirrel

Taxonomic remarks: Ellerman (1961) included seven subspecies and Chakraborty (1985) lists six subspecies under this taxon. For South Asia only three subspecies are valid (Corbet & Hill, 1992)

Habit: Diurnal, arboreal

Habitat: Temperate and subtropical evergreen and dry deciduous montane forests

Niche: Mid canopy jungles with thick to moderate evergreen forest patches

Elevation: 500-1,560m

Distribution

Global: Bangladesh, Bhutan, China, India, Nepal, Vietnam

South Asia: Bangladesh, Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bangladesh < 20,000; Bhutan < 20,000; India > 20,000; Nepal > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh < 2,000; Bhutan < 2,000; India > 2,000; Nepal > 2,000]

Locations/subpopulations: Many/10, Contiguous

Habitat status: Loss of habitat and qualitative decrease in habitat due to shifting agriculture, small-scale and selective logging, clear cutting, establishment of human settlements, forest fires

Threats

Shifting agriculture, small-scale and selective logging, clear cutting, establishment of human settlements, forest fires, and hunting

Trade: For local consumption

Population

Generation time: Unknown

Total population: >10,000

Mature individuals: >10,000

Population trend: Declining. Rate unknown

Data source

Field study, informal sightings, literature, museum specimen; inferred; estimated; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bangladesh: Vulnerable ↓ Near Threatened B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in Bangladesh. However, since the species occurs in the neighbouring

country with chances of migration/recolonisation, it is downgraded by one category.

Bhutan: Vulnerable ↓ Near Threatened B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in Bhutan. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

India: Least Concern

Nepal: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP, Pakhui WS & NP

West Bengal: Gorumara NP, Mahananda WS

Recommendations

Research: Survey

Management: Monitoring

Captive stocks: None

Comments

In Chillapat Forest, West Bengal the density was estimated to be 0.05 individual per hectare in 1983. However in 2002, it was found to be 0.03 individuals per hectare (S. Chakraborty, pers. observ. in 2003). The canopy cover decreased from 65 to 40 percent in that period.

Sources

Chakraborty, 1985; Mandal *et al.*, 2000; Mishra *et al.*, 2004; Srinivasulu *et al.*, 2004; Khan, 1982; Chakraborty, 1975 BIS on species by: S. Chakraborty,

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: S. Chakraborty

Recent Field Studies

Chakraborty, S., Gorumara, Mahnanda, Chillapata, Samsira, Latpancher, 1983-2002, Mapping and status survey of some endangered species of West Bengal
Chakraborty, S., Chunthang, Gangtok, Lachen, Sikkim, Status survey of snow leopard and other mammals

Distribution of *Callosciurus pygerythrus* (I.G. Saint-Hillaire, 1831) in South Asia (Bangladesh, Bhutan, India and Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH					Goalpara	26°43'	89°53'	Mon.	Chakraborty (1985)
Sylhet	22°21'	91°48'	Trop. F.	Khan (1982)	Jamduar	-	-	St. F.	Chakraborty (1985)
Chittagong	23°43'	90°24'	Trop. F.	Khan (1982); not found west of Jamuna River	Raimona	-	-	Mon.	Chakraborty (1985)
Dacca	24°32'	91°52'	Trop. F.	Khan (1982)	North Cachar	25°30'	93°00'	Mon.	Chakraborty (1985)
Sylhet	-	-	Mon.	Chakraborty (1975)	North Cachar	26°20'	91°15'	St. F.	Chakraborty (1985)
BHUTAN					North Kamrup	26°20'	91°15'	Mon.	Chakraborty (1985)
Central Bhutan	-	-	St. F.		North Kamrup	26°20'	91°15'	St. F.	
Gaylagphug					South Kamrup	26°20'	91°15'	Mon.	Chakraborty (1985)
INDIA					South Kamrup	26°20'	91°15'	St. F.	
Arunachal Pradesh					Meghalaya				
Changlang	27°23'	96°15'	Mon.	Mishra <i>et al.</i> (2004)	Garò Hills	25°30'	90°30'	Trop. F.	Chakraborty (1985)
Namdapha NP	27°39'	97°58'	Trop. F.		Garò Hills	26°19'	90°47'	Trop. F.	Chakraborty (1985)
East Kameng	26°54'	92°36'	Mon.	Mishra <i>et al.</i> (2004)	Rangapani	-	-	Trop. F.	Chakraborty (1985)
Pakhui WS	27°16'	93°09'	St. F.		Ronrengiri	-	-	Trop. F.	Chakraborty (1985)
Siang	28°28'	94°40'	Mon.	Chakraborty (1985); in Abor Hills.	Jaintia Hills	25°30'	92°15'	Trop. F.	Chakraborty (1985)
Balek	28°25'	98°44'	St. F.	Chakraborty (1985) also mentions a specimen from near Kalek - a misspelt location that could be Balek	Jaintia Hills	25°30'	92°15'	Trop. F.	Chakraborty (1985)
Ratung	26°57'	93°58'	Mon.	Chakraborty (1985); in Abor Hills	East & West Khasi Hills	25°30'	91°30'	Trop. F.	Chakraborty (1985)
Lower Subansiri	28°25'	98°44'	Mon.	Chakraborty (1985)	Burnihat	-	-	Trop. F.	Chakraborty (1985)
Dikrang	26°57'	93°58'	St. F.		Mongpoh	-	-	Trop. F.	Chakraborty (1985)
Tirap	-	-	Mon.		Mizoram				
Deomali	-	-	St. F.		Lunglei	22°49'	92°49'	Trop. F.	Mandal <i>et al.</i> (2000)
Assam					Sairep	23°10'	92°50'	Trop. F.	Chakraborty (1985)
Darang	-	-	Mon.	Chakraborty (1985)	Lushai Hills	26°00'	95°00'	Mon.	Chakraborty (1985)
Ballipara	-	-	St. F.		Nagaland				
Jangta	-	-	Trop. F.	Chakraborty (1985)	Tuensang	26°00'	95°00'	Mon.	Chakraborty (1985)
Lokra	-	-	Trop. F.	Chakraborty (1985)	East Naga Hills	-	-	St. F.	Trop. F.

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Callosciurus pygerythrus* (I.G. Saint-Hillaire, 1831) in South Asia (Bangladesh, Bhutan, India and Nepal) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Sikkim				
North Sikkim	27°38'	88°36'	Mon.	S. Chakraborty, BIS
Chungthang			St. F.	
	27°20'	88°37'	Mon.	S. Chakraborty, BIS; Chakraborty (1985)
Gangtok			St. F.	
	27°44'	88°33'	Mon.	Chakraborty (1985)
			St. F.	
West Bengal				
Darjeeling	26°45'	88°15'	Trop. F.	Chakraborty (1985)
Darjeeling	-	-	Temp. F.	Chakraborty (1985)
Gopaldhara	-	-	Mon.	S. Chakraborty, BIS; Montane moist
Latpanchar	-	-	St. F.	deciduous forest. Threats include illegal felling
Mahananda	26°47' to 26°55'	88°63' to 89°33'	Temp. F.	S. Chakraborty, BIS; Montane moist deciduous forest. Threats include illegal felling
Mongpu	-	-	Temp. F.	Chakraborty (1985)
Nawbong	-	-	Temp. F.	Chakraborty (1985)
Sangser	27°04'	88°30'	Temp. F.	Chakraborty (1985)
Samling	-	-	Mon.	S. Chakraborty, BIS; Montane moist deciduous forest. Threats include illegal felling
			St. F.	
Sevak	-	-	Temp. F.	Chakraborty (1985)
Pashok	27°04'	88°24'	Temp. F.	Chakraborty (1985)
Tindharia	-	-	Temp. F.	Chakraborty (1985)
Jalpaiguri	-	-	Trop. F.	S. Chakraborty, BIS; plain mixed deciduous and grassy hills. Threats include illegal felling
Chillapata	-	-		
Gorumara NP	-	-	Trop. F.	S. Chakraborty, BIS; Northwest of Banarhat (26°48' and 89°02'). Plain mixed deciduous and grassy hills. Threats include illegal felling

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Callosciurus pygerythrus* (I Geoffroy Saint-Hillaire, 1831) is known in Bangladesh, Bhutan, India and Nepal



***Dremomys lokriah* (Hodgson, 1836)**

LEAST CONCERN in South Asia

Synonyms: *Sciurus lokriah* Hodgson, 1836; *Sciurus subflaviventris* Gray, 1843; *Dremomys lokriah subflaviventris* (Gray, 1843); *Sciurus locriah* Blanford, 1891; *Dremomys lokriah bhotia* Wroughton, 1916; *Dremomys macmillani* Thomas, 1916; *Dremomys lokriah garonum* Thomas, 1922

Order: Rodentia

Family: Sciuridae

Common names: English: Orange-bellied Himalayan Squirrel

Taxonomic remarks: Ellerman and Morrison-Scott (1951) recognised two subspecies, namely *Dremomys lokriah lokriah* (Hodgson, 1836) and *Dremomys lokriah macmillani* Thomas, 1916, while Ellerman (1961) added *Dremomys lokriah pagus* Moore, 1956 to the list. The last subspecies does not occur in South Asian region. Moore and Tate (1965) recognised along with the three listed above *Dremomys lokriah garonum* Thomas, 1922 too. Corbet and Hill (1992) comment in detail on the intergradation of all these races and indicate that only *Dremomys lokriah lokriah* (Hodgson, 1836) and *Dremomys lokriah macmillani* (Thomas, 1916) are distinct enough to be considered as valid subspecies following Agrawal and Chakraborty (1979)

Habit: Diurnal, arboreal; also forages on the forest floor

Habitat: Subtropical montane evergreen and broad leaved forests

Niche: Tree hollows in mid high canopy of dense oak, bamboo, fir and pine forest patches

Elevation: 900-3,000m

Distribution

Global: Bangladesh, Bhutan, China, India, Myanmar, Nepal

South Asia: Bangladesh, Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bangladesh < 20,000; Bhutan > 20,000; India > 20,000; Nepal > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh < 2,000; Bhutan > 2,000; India > 2,000; Nepal > 2,000]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% in the last 20 years and a similar trend is predicted in the next 20 years due to tree felling for fuel wood, firewood, building construction, clearing forest to open grazing pastures, urbanisation, logging

Threats

Human induced habitat degradation due to small-scale logging, selective logging, clear-cutting, expansion of human settlement, road construction activities, harvesting for local consumption, and natural predators

Trade: For local consumption

Population

Generation time: Unknown

Total population: > 10,000

Mature individuals: Unknown

Population trend: 10% decline in 30 years. Predicted decline at 10% in 30 years

Data source

Field studies, literature, museum specimen; inferred; estimated; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bangladesh: Vulnerable ↓ Near Threatened B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in Bangladesh. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Bhutan: Least Concern

India: Least Concern

Nepal: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Bangladesh

Lawachara NP

India

Arunachal Pradesh: Eagle's Nest WS, Kamlang WS, Namdapha NP, Pakhui WS & NP, Sessa Orchid Sanctuary, Tale Valley WS

Recommendations

Research: Survey, life history, trade

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Mishra *et al.*, 2004; Srinivasulu *et al.*, 2004; Chakraborty, 1975 BIS on species by: A. Datta

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

Datta, A., C. Mishra, and M.D. Madhusudan, Tawang, West Kameng Districts, Arunachal Pradesh, 2003, High Altitude Faunal Survey and Vegetation/Habitat mapping

Datta, A., Changlang, Tirap and Lohit Districts, 2002-2003, Hunting survey and Mammal survey

Datta, A., East Kameng and Changlang Districts, 1997-2000, Study on Hornbill ecology

Datta, A., East and West Kameng districts, 1995-1996, Impact of logging on squirrels and primates

Distribution of *Dremomys lokriah* (Hodgson, 1836) in South Asia (Bangladesh, Bhutan, India and Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Sylhet Lawachara	24°54'	91°56'	Trop. F.	Sanjay Molur (pers. comm.); in 2002	West Kameng Eagle's Nest WS	27°14'	92°46'	Trop. F.	include fuel wood cutting and forest clearing for pastures
BHUTAN									
Central Bhutan									
Balfau	27°13'	91°30'	Mon. St. F.	S.S. Saha (pers. comm.)					A. Datta, BIS; between Eagle's Nest Pass and Ramalingam, alt. 1,500-2,000m; in oak and hill bamboo forest. Threats include fuel wood collection, tree cutting, hunting and trapping
Donga Pemi	27°33'	91°17'	Mon. St. F.	S.S. Saha (pers. comm.)					Mishra <i>et al.</i> (2004); A. Datta, BIS; between Mago and Thingbu, Tawang District, alt. 3,300-3,500m; in fir and pine forest; 3-4 sightings. Threats include fire wood cutting primarily for army base
Panjurmane	-	-	Mon. St. F.	Chakraborty (1975); c. 1,525m	Mago Chu	26°36'	92°02'	Mon. St. F.	A. Datta, BIS; also at Changla and in between areas; alt. 3,000-3,500m; in fir and pine forest. Threats include fuel wood collection and forest clearing for pastures
Tashi Yang-Tsi	27°27'	91°36'	Mon. St. F.	S.S. Saha (pers. comm.)					
East Bhutan Gornchu	-	-	Mon. St. F.	Chakraborty (1975); c. 2,500m	Thungri	27°45'	92°38'	Mon. St. F.	
West Bhutan ? location	-	-	Mon. St. F.	Chakraborty (1975); c. 2,377m; c. 36 km from Simtokha on Wangdu Phodrang Road					
Chasiakha	-	-	Mon. St. F.	Chakraborty (1975); c. 1,860m	Assam				
Susuna	-	-	Mon. St. F.	Chakraborty (1975); c. 2,350m	Kamrup Rajapara	-	-	Trop. F.	Ellerman (1961)
INDIA					Meghalaya				
Arunachal Pradesh					Garro Hills Duragiri	-	-	Trop. F.	Ellerman (1961); in Garo Hills (25°30' N & 90°30' E)
Changlang Namdapha NP	27°23' to 27°39'	96°15' to 96°58'	Mon. St. F. Trop. F.	Mishra <i>et al.</i> (2004); A. Datta, BIS; sighted at Hornbill and Bulbulia, alt. 900m; Threats include hunting and trapping	Tura	-	-	Trop. F.	Ellerman (1961); in Garo Hills (25°30' N & 90°30' E)
Lohit Dreyi	28°15'	96°00'	Mon. St. F.	Ellerman (1961)	Jaintia Hills Khonshmong	-	-	Trop. F.	Ellerman (1961)
Tawang Mukto	27°33'	91°54'	Mon. St. F. Trop. F.	A. Datta, BIS; in broad-leaved mixed oak and pine forest; alt. 2,400m. Threats include fuel wood cutting and forest clearing for pastures	Nagaland				
Sospu	27°34'	91°44'	Mon. St. F.	A. Datta, BIS; in fir forest with rhodendron and Juniper scrub; alt. 3,500m. Threats	Tuensang Mokokchung	26°15'	94°15'	Mon. St. F.	Ellerman (1961); in Naga Hills
					Sikkim				
					Ringin	-	-	Mon. St. F.	Ellerman (1961)
					Sedenchon	-	-	Mon. St. F.	Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Dremomys lokriah* (Hodgson, 1836) in South Asia (Bangladesh, Bhutan, India and Nepal) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
North Sikkim Gangtok	27°20'	88°37'	Mon. St. F.	Ellerman (1961)
West Bengal				
Darjiling Sukiapokhri	-	-	Mon. St. F.	Ellerman (1961)
NEPAL				
Central Nepal				
Gorkha	28°01'	84°37'	Mon. St. F.	Ellerman (1961)
Satthar Hills	-	-	-	Ellerman (1961); near Gorkha(28°01' N & 84°37' E)
Eastern Nepal				
Chandragiri Pass	-	-	-	Ellerman (1961); Could be Chandra Gadhi (26°35' N & 88°04' E)
Hathibun	-	-	-	Ellerman (1961)

Locations from where *Dremomys lokriah* (Hodgson, 1836) is known in Bangladesh, Bhutan, India and Nepal



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Dremomys pernyi (Milne-Edwards, 1867)

NEAR THREATENED in South Asia

Synonyms: *Sciurus pernyi* Milne-Edwards, 1867

Order: Rodentia

Family: Sciuridae

Common names: English: Perny's Long-nosed Squirrel

Taxonomic remarks: Ellerman (1961) maintained two subspecies, namely *Dremomys pernyi pernyi* (Milne-Edwards, 1867) and *Dremomys pernyi imus* Thomas, 1922, which does not occur in South Asia. Corbet and Hill (1992) listed numerous subspecies names of which only *Dremomys pernyi howelli* Thomas, 1922 reported from Assam as valid for the region. But following Ellerman (1961) who treated it as synonym of the nominate race, we do not list it as distinct subspecies

Habit: Diurnal, arboreal; also forages on the forest floor

Habitat: Subtropical montane evergreen and broad leaved forests

Niche: Tree hollows in mid high canopy of dense oak, bamboo, fir and pine forest patches

Elevation: 900-3,000m

Distribution

Global: China, India, Myanmar, Taiwan, Vietnam

South Asia: India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 501- 2000 sq km

Locations/subpopulations: 2/2, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of 21 to 50 % in the last 20 years and a similar trend is predicted in the next 20 years due to shifting (jhum) cultivation practices, tree felling for fuel wood, firewood, building construction, clearing forest to open grazing pastures, urbanisation, logging

Threats

Habitat degradation due to shifting (jhum) cultivation practices and hunting and poaching for local consumption

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Declined > 20% in 20 years. Predicted decline > 10% in 20 years

Data source

Literature, museum records; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) VULNERABLE ↓ NEAR THREATENED in South Asia B2ab (ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Srinivasulu *et al.*, 2004; Chakraborty, 1975

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Dremomys pernyi* (Milne-Edwards, 1867) is known in India



Distribution of *Dremomys pernyi* (Milne-Edwards, 1867) in South Asia (India) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Manipur				
Chandel	-	-	-	Ellerman (1961); 6 miles west of Kindat, Myanmar. The locality could be near the Myanmar border in Chindwin region;
Chin Hills				type locality of 'mentosus' Thomas, 1922 C. Srinivasulu (pers. comm.)
Nagaland				
Tuensang	26°15'	94°15'	Mon.	Ellerman (1961); in Naga Hills
Mokokchung			St. F.	

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Dremomys rufigenis* (Blanford, 1878)**

VULNERABLE in South Asia

Synonyms: *Sciurus rufigenis* Blanford, 1878

Order: Rodentia

Family: Sciuridae

Common names: English: Red-cheeked Squirrel

Taxonomic remarks: Ellerman (1961) included two subspecies, namely *Dremomys rufigenis rufigenis* (Blanford, 1878) and *Dremomys rufigenis adamsoni* Thomas, 1914, which does not occur in South Asia

Habit: Diurnal, arboreal; also forages on the forest floor

Habitat: Subtropical montane evergreen and broad leaved forests

Niche: Tree hollows in mid high canopy of dense oak, bamboo, fir and pine forest patches

Elevation: ~1,500m

Distribution

Global: China, India, Lao PDR, Malaysia, Myanmar, Thailand, Vietnam

South Asia: India

Extent of Occurrence: 5001-20,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 2/2, Fragmented

Habitat status: Decline in area and quality of habitat due to several threats

Threats

Natural disasters as landslides, habitat loss, fragmentation, encroachment, human interference

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, literature, museum records; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **ENDANGERED** ↓

VULNERABLE in South Asia B2ab(iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

Zoological Survey of India, Namdapha National Park, Arunachal Pradesh, India, 1980 onwards, Faunal inventorisation

Locations from where *Dremomys rufigenis* (Blanford, 1878) is known in India



Distribution of *Dremomys rufigenis* (Blanford, 1878) in South Asia (India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Arunachal Pradesh				
Changlang	-	-	-	S.S. Saha (pers. comm.); 10 km north of Deban, in Namdapha NP (27°23' to 26°15' N & 96°15' to 96°58' E)
Namdapha NP				
Nagaland				
Tuensang	26°15'	94°15'	Mon.	Ellerman (1961); in Naga Hills
Mokokchung			St. F.	

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Eoglaucmys fimbriatus (Gray, 1837)

LEAST CONCERN

Synonyms: ? *Sciuropterus fimbriata* Gray, 1837;
Sciuropterus fimbriatus Gray, 1837

Order: Rodentia

Family: Sciuridae

Common names: English: Small Kashmir Flying Squirrel

Taxonomic remarks: Belongs to subgenus *Eoglaucmys* Howell, 1915. Ellerman (1940, 1961) included two subspecies – *Hylopetes fimbriatus fimbriatus* (Gray, 1837) and *Hylopetes fimbriatus baberi* (Blyth, 1847). The latter taxon was elevated to specific level by Chakraborty (1981)

Habit: Nocturnal, arboreal

Habitat: Temperate and subtropical deciduous and boreal forests

Niche: Tree hollows dense broad leaved forest patches and also in rock crevices

Elevation: 1,800-3,500m

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Pakistan > 2,000]

Locations/subpopulations: 21/4, Fragmented

Habitat status: Quantitative and qualitative decrease in up to 50% of habitat in past 50 years and same rate predicted for the next 20 years due to habitat loss because of tree felling.

Threats

Small-scale logging, selective logging, wood collection, natural predators civil unrest, pet trade and the fur trade

Trade: For fur and also for keeping as pets

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Declining. Rate unknown

Data source

Field studies, literature, museum records; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

Wildlife Legislation:

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Pakistan: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey

Management: Public awareness

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Roberts, 1997; Srinivasulu *et al.*, 2004; Zahler & Karim, 1998; Pasha & Suhail, 1997

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Eoglaucmys fimbriatus* (Gray, 1837) is known in India and Pakistan



Distribution of *Eoglaucomyx fimbriatus* (Gray, 1837) (Endemic to India and Pakistan) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Himachal Pradesh									
Kinnaur	31°36'	78°16'	Mon. St. F.	Ellerman (1961)	Uttranchal	29°29'	79°26'	Mon. St. F.	Pasha & Suhail ((1997)
Pangi									
Kullu					PAKISTAN				
? Locality	-	-	-	T.P. Bhattacharyya (pers. comm.); in pine forest; alt.1,800-3,600m	North West Frontier Province				
Nagar	32°07'	77°10'	Mon. St. F.	Ellerman (1961), in Kullu and Nagar Valley	Chitral	36°15'	72°15'	Mon. St. F.	Roberts (1997)
Kangra					Chitral				
? Locality	-	-	-	T.P. Bhattacharyya (pers. comm.); in pine forest; alt.1,800-3,600m	Dir	34°17'	71°49'	Mon. St. F.	Roberts (1997)
Shimla					Dir				
Shimla	31°06'	77°10'	Mon. St. F.	Ellerman (1961)	Hazara	34°30'	73°15'	Mon. St. F.	Roberts (1997)
Jammu and Kashmir					Hazara				
Nasai	-	-	Mon. St. F.	Ellerman (1961)	Khagan	34°47'	73°32'	Mon. St. F.	Roberts (1997)
Sardalla	-	-	Mon. St. F.	Ellerman (1961)	Thandiani	34°14'	73°22'	Mon. St. F.	Roberts (1997)
Chilas					Swat Kohistan				
Nanga Parbat	35°15'	74°36'	Mon. St. F.	Roberts (1997)	Swat	35°35'	72°30'	Mon. St. F.	Roberts (1997); in Kohistan
Gilgit					Punjab				
Gilgit	35°45'	74°30'	Mon. St. F.	Ellerman (1961)	Rawalpindi	-	-	Mon. St. F.	Roberts (1997); in Murree Hills (c. 33°55' N & 73°25' E)
Yasin	36°21'	73°19'	Mon. St. F.	Zahler & Karim (1998); also at Kargah Valley about 2,000m elevation	Bhurban			Mon. St. F.	Roberts (1997); in Murree Hills (c. 33°55' N & 73°25' E)
Ladakh					Gharial	32°01'	74°31'	Mon. St. F.	Roberts (1997); in Murree Hills (c. 33°55' N & 73°25' E)
Tuan	33°20'	76°37'	Mon. St. F.	Ellerman (1961)	Murree Hills	33°55'	73°25'	Mon. St. F.	Roberts (1997)
Muzaffarabad									
Muzaffarabad	34°45'	74°00'	Mon. St. F.	Roberts (1997)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Eupetaurus cinereus* Thomas, 1888**

ENDANGERED in South Asia

Synonyms: None

Order: Rodentia

Family: Sciuridae

Common names: English: Woolly Flying Squirrel

Taxonomic remarks: Schaub (1953) erected a separate family Eupetauridae to accommodate this taxon. Later, McKenna (1962) retained it to Sciuridae based on its affinity with *Petaurista* genus, especially *Petaurista xanthotis* (Milne-Edwards, 1872)

Habitat: Nocturnal, arboreal

Habitat: Temperate and subtropical dry deciduous forests

Niche: In rock crevices on cliffs and tree hollows

Elevation: 2,400-3,800m

Distribution

Global: China, India, Pakistan

South Asia: India, Pakistan

Extent of Occurrence: < 5,000 sq km [India < 5,000; Pakistan < 5,000]

Area of Occupancy: < 5,000 sq km [India < 500; Pakistan < 500]

Locations/subpopulations: 10/3, Fragmented

Habitat status: Quantitative and qualitative decrease due to loss of feeding areas due to clear felling and other anthropogenic activities

Threats

Habitat loss due to expansion of agriculture, small wood plantations, small-scale logging, infrastructure development, human settlements; harvesting for local consumption and natural predators

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, indirect information, literature, museum records; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0): **ENDANGERED in South Asia B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

National Status (IUCN Ver. 3.0)

India: Endangered B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. Since the situation is similar in the neighbouring country, the category is retained.

Pakistan: Endangered B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. Since the situation is similar in the neighbouring country, the category is retained.

Wildlife Legislation:

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Pakistan: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey

Management: Habitat management, monitoring, public awareness

Captive stocks: None

Comments

Nothing is known about its population excepting that it has been recently rediscovered in many areas in its range; exact extent of available sites unknown but known localities with species occurrence widely scattered

Sources

Srinivasulu *et al.*, 2004; Zahler, 1996; Zahler and Woods, 1997; Agrawal & Chakraborty, 1970

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

India

Zoological Survey of India, Himachal Pradesh, India, 1990 onwards, Faunistic surveys

Disputed Kashmir

Ali, Z. Sai Nalla, Chilas, Naltar, Kargah, Nagar, Gilgit, Baltistan, Gilgit District, India, 1994, Rediscovery, population estimates and habitat analysis

Zahler, P., Sai Nalla, Baltistan, Gilgit, India, 2002, Status analysis Mirza, Z.B., Sai Nalla, Baltistan, Gilgit, India, 1993, Occurrence of *Eupetaurus cineraceus*

Pakistan

Rasool, G., Federal Agencies of Northern Area, Pakistan, 2002, Conservation measures of *Eupetaurus cineraceus*

Distribution of *Eupetaurus cinereus* Thomas, 1888 in South Asia (India and Pakistan) from literature and recent field studies

Distribution in
South Asia

INDIA

Jammu and Kashmir

	Lat.	Long.	Habitat	Notes / Sources
Gilgit	35°45'	74°30'	Mon.	Zahler and Woods (1997)
Gilgit			St. F.	
Jaglot	35°40'	73°24'	Mon.	Near Sai Nalla
			St. F.	
Kargah	35°56'	74°13'	Mon.	Zahler (1996)
			St. F.	
Nultar	35°54'	74°20'	Mon.	Zahler (1996)
			St. F.	
Sai	35°45'	74°20'	Mon.	Zahler (1996)
			St. F.	
Gilgit Wazarat Astor	35°34'	74°41'	Mon.	Zahler and Woods (1997)
			St. F.	
Balti Gali	35°33'	74°35'	Mon.	Zahler and Woods (1997)
			St. F.	
Gorabad	35°38'	74°33'	Mon.	Zahler and Woods (1997), about 12 hour hike, northeast
			St. F.	
Hurkus	35°45'	74°27'	Mon.	Zahler and Woods (1997), also in Gashu Gah in Sai Valley
			St. F.	
Shispar	36°50'	74°55'	Mon.	Zahler (1996)
			St. F.	

Sikkim

North Sikkim

? Locality

- - - Agrawal & Chakraborty (1970) Zahler and Woods (1997)

PAKISTAN

North West Frontier Province

Chitral

Chitral

36°15' 72°15'

Mon.

St. F.

Zahler and Woods (1997)

Locations from where *Eupetaurus cinereus* Thomas, 1888 is known from India and Pakistan



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Funambulus layardi* (Blyth, 1849)**

VULNERABLE

Synonyms: *Sciurus layardi* Blyth, 1849; *Tamoides layardi layardi* Phillips, 1935; *Tamoides layardi signatus* Phillips, 1935 *Funambulus layardi* Robinson, 1917

Order: Rodentia

Family: Sciuridae

Common names: English: Layard's Striped Squirrel

Taxonomic remarks: Belongs to subgenus *Funambulus* Lesson, 1835. Ellerman (1961) opined that *Funambulus layardi signatus* Thomas, 1924 could not be regarded as a race due to paucity of specimens, while *Funambulus layardi dravidianus* Robinson, 1917 should not be treated as a distinct race as it was described only from a juvenile specimen. Phillips (1981) retained two subspecies from Sri Lanka

Habit: Diurnal, arboreal

Habitat: Tropical and subtropical montane evergreen and rainforests

Niche: Low country wet zone to mid montane wet zone, lowland rainforest, montane rainforest

Elevation: Unknown

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 5,001-20,000 sq km [Estimated: 10,000 sq km; based on inference of areas available between locations currently known to have the species]

Area of Occupancy: > 2,001 sq km [Estimated: 3,400 sq km; based on the approximate estimate of habitat for the species including its currently known areas]

Locations/subpopulations: 25/2, Fragmented [Many localities but in two separate geographical locations]

Habitat status: Quantitative and qualitative decrease in habitat at the rate of 21-50 % in the last 10 years and a > 30% decrease of the habitat in the next 10 years is predicted due to loss of trees

Threats

Habitat loss and degradation due to large wood plantations, selective logging and forest fires

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease of the population at a rate of 20% or more in the last 10 years and a future decline at the rate of 30% or more in the next 10 years is predicted due to loss of habitat

Data source

Indirect information, informal sightings, literature, museum specimens; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE**

A3c+4c; B1ab(ii,iii)

Rationale: Continuing decline in population due to major threats predicted over the next three generations. Restricted in extent of occurrence, many but fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Sri Lanka

Central Province: Horton Plains NP

Recommendations

Research: Survey, taxonomic research

Management: Captive breeding for species recovery

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Phillips, 1980; Phillips, 1932, 1935; IUCN, WCMC & FAO, 1997; Karuaratne, 1992; Zoysa & Raheem, 1987; Srinivasulu *et al.*, 2004 BIS on species by: W.L.D.P.T.S. de A. Goonatilake

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: W.L.D.P.T.S. de A. Goonatilake

Recent Field Studies

YZA, Delwala FR, Kiribadgala, Ratnapura Dist., Sabargamuwa Province, 1997

Zoysa & Raheem, Sinharaja Forest Reserve, Ratnapura Dist., 1997

Balasubramaniam *et al.*, Yagirala, Waratelgoda, Runakanda, Sinharaja, Kalutara District, 1990

Ranasinghe, Kalugala, Kalutara District, 1996

Ranasinghe and Ratnayake, Bombagaskanda, Kalutara District, 1992 IUCN/WCMC/FAO, Amanawala - Ampane,

Kellany Valley, Kegalle District, Morahena, Karawita, Ayagama, Sinharaja, Walawe Basin, Wewelkadura,

Assantanakanda, Appalagala, Delwala, Gillemale-Iratne, Anninkanda, Masinbula, Ratnapura District, Kalugala,

Neluketiya-Mukalana, Kalutara District, Polagahakanda, Kanneliya, Siverkanda, Thibborukanda, Galle District, Pedro,

Nuwara Eliya District, Mualtiyana, Matara District, Knuckles, Kandy district, 1997

Distribution of *Funambulus layardi* (Blyth, 1849) (Endemic to Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
SRI LANKA				
Central Province				
Kandy	-	-	Trop. F.	Phillips (1935), W.L.D.P.T.S. de A. Goonatilake, BIS
Walaketiya	-	-	Trop. F.	Phillips (1935), W.L.D.P.T.S. de A. Goonatilake, BIS
Matale				
Amimbegamuwa	6°32'	80°56'	Trop. F.	Phillips (1935), W.L.D.P.T.S. de A. Goonatilake, BIS
Gammaduwa	7°34'	80°42'	Trop. F.	Phillips (1932), W.L.D.P.T.S. de A. Goonatilake, BIS
Matale	7°31'	80°38'	Trop. F.	Phillips (1932), W.L.D.P.T.S. de A. Goonatilake, BIS
Southern Province				
Galle	6°03'	80°12'	Trop. F.	Phillips (1935), W.L.D.P.T.S. de A. Goonatilake, BIS
Galle	7°04'	80°23'	Trop. F.	IUCN, WCMC & FAO (1997)
Kelani Valley	7°03'	80°18'	Trop. F.	IUCN, WCMC & FAO (1997)

Sabaragamuwa

Ratnapura	-	-	Trop. F.	Ellerman (1961)
? locality	-	-	Trop. F.	Ellerman (1961)
Adams Peak	6°48'	80°29'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Aninkanda	-	-	Trop. F.	IUCN, WCMC & FAO (1997)
Ayagama	6°38'	80°19'	Trop. F.	IUCN, WCMC & FAO (1997)
Balangoda	6°38'	80°41'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Belhuloya	6°41'	80°46'	Trop. F.	Karunaratne (1992)
Delwala FR	7°16'	80°07'	Trop. F.	IUCN, WCMC & FAO (1997)
Horupatana	-	-	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Karawita	7°33'	79°51'	Trop. F.	IUCN, WCMC & FAO (1997)
Maussakanda	6°27'	80°40'	Trop. F.	Ellerman (1961)
Morathena	7°25'	80°24'	Trop. F.	IUCN, WCMC & FAO (1997)
Pilipota	6°41'	80°45'	Trop. F.	Karunaratne (1992)
Rakwana	6°30'	80°35'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Rassagala	6°41'	80°38'	Trop. F.	Ellerman (1961); Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Ratnapura	6°40'	80°23'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Sinharaja FR	6°24'	80°30'	Trop. F.	Zoysa and Raheem (1987), IUCN, WCMC & FAO (1997)
Timbolketiya	6°24'	80°47'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Wewelkandura	6°31'	80°26'	Trop. F.	IUCN, WCMC & FAO (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon. G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Funambulus layardi* (Blyth, 1849) is known in Sri Lanka



***Funambulus palmarum* (Linnaeus, 1766)**

LEAST CONCERN

Synonyms: *Sciurus palmarum* Linnaeus, 1766; *Sciurus pencillatus* Leach, 1814; *Sciurus indicus* Lesson, 1835; *Sciurus brodei* Blyth, 1849; *Funambulus palmarum brodei* (Blyth, 1849); *Sciurus kelaarti* Layard, 1851; *Funambulus palmarum comorinus* Wroughton, 1905; *Funambulus palmarum favonicus* Thomas & Wroughton, 1915; *Funambulus palmarum olympius* Thomas & Wroughton, 1915; *Funambulus bengalensis*; Wroughton, 1916; *Funambulus robertsoni* Wroughton, 1916; *Funambulus palmarum robertsoni* (Wroughton, 1916); *Funambulus gossei* Wroughton & Davidson, 1919

Order: Rodentia

Family: Sciuridae

Common names: English: Indian Palm Squirrel, Common Palm Squirrel; Tamil: *Anil*; Telugu: *Mudu Charala Udatha*

Taxonomic remarks: Belongs to subgenus *Funambulus* Lesson, 1835. Ellerman (1961) listed six subspecies of *Funambulus palmarum* from the region – *Funambulus palmarum kelaarti* (Layard, 1851) (including 'olympius' and 'favonicus'), *Funambulus palmarum brodei* (Blyth, 1849), *Funambulus palmarum roberstoni* (Wroughton, 1916), *Funambulus palmarum matugamensis* Lindsay, 1926, *Funambulus palmarum bellaricus* Wroughton, 1916, and *Funambulus palmarum palmarum* (Linnaeus, 1766) (including 'comorinus', 'gossei', and 'bengalensis'). Phillips (1981) listed four subspecies from Sri Lanka – *Funambulus palmarum brodei* (Blyth, 1849), *Funambulus palmarum kelaarti* (Layard, 1851), *Funambulus palmarum olympius* Thomas & Wroughton, 1915, and *Funambulus palmarum favonicus* Thomas & Wroughton, 1915 (including junior synonym *Funambulus palmarum matugamensis* Lindsay, 1926). Corbet and Hill (1992) propose the following subspecies from the region: *Funambulus palmarum comorinus* Wroughton, 1905, *Funambulus palmarum favonicus* Thomas and Wroughton, 1915, *Funambulus palmarum olympius* Thomas and Wroughton, 1915, *Funambulus palmarum bellaricus* Wroughton, 1916, and *Funambulus palmarum matugamensis* Lindsay, 1926. We retain only four forms owing to character overlaps with two Indian forms – *Funambulus palmarum palmarum* (Linnaeus, 1766) and *Funambulus palmarum bellaricus* Wroughton, 1916; and two Sri Lankan forms – *Funambulus palmarum matugamensis* Lindsay, 1924 and *Funambulus palmarum kelaarti* (Layard, 1851)

Habit: Diurnal, semi-arboreal

Habitat: Tropical and subtropical dry deciduous forest, mangrove forest, grasslands, scrublands, plantations, rural gardens, urban areas. In Sri Lanka, found throughout the island except in deep jungles

Niche: Tree hollows

Elevation: 0-2,000m

Distribution

Global: Endemic to South Asia

South Asia: India, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Sri Lanka > 2,000]

Locations/subpopulations: Many/many, fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% due to habitat loss, decrease in nesting areas, urbanisation

Threats

Habitat loss and degradation due to agro-industry farming, small-scale logging, human encroachments, invasive alien species, pest control practices, hunted for local consumption purposes

Trade: For local consumption, and kept as pets

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Census monitoring, informal sightings; observed

Status

C.A.M.P. (IUCN Ver. 3.1) LEAST CONCERN

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.1)

India: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India Andhra Pradesh: Coringa WS, Eturunagaram WS, Gundla Brahmeshwaram Metta WS; Kasu Brahmananda Reddy NP; Kawal WS; Mahaveer Harina Vanasthali NP; Manjira WS; Nagarjunsagar-Srisailem TR; Nelapattu BS; Pranahita WS; Pulicat BS; Siwaram WS; Sri Lankamalleshwara NP, Sri Venkateshwara NP

Chhattisgarh: Indravathi NP Madhya Pradesh: Kanha NP; Satpura NP

Orissa: Chandaka-Dampara WS Rajasthan: Kumbhalgarh WS, Phulwari WS

Recommendations

Research: Taxonomic research

Management: Public awareness

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Phillips, 1980; Chakraborty *et al.*, 2004; Ghose & Bhattacharyya, 1995a, 1995b; Harley & Chandra, 2001; Srinivasulu *et al.*, 2004; Tiwari *et al.*, 2002; Sharma, 2005 BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu, J. Joshua, P. Neelananarayanan, P. Padmanabhan, W.L.D.P.T.S. de A. Goonatilake

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

Neelanarayanan, P., In and around Puttanampatti and Omandur, 2003, Survey of rodents and insectivores
Easa, *et al.*, Throughout Kerala, 1993-1998, Survey of Small mammals in Kerala with special reference to endangered species
Srinivasulu, C. and Bhargavi Srinivasulu, 1996 onwards, Status of mammals of Andhra Pradesh
Srinivasulu, C., 1996 onwards, Nagarjunasagar Srisailem Tiger Reserve, Biodiversity of Nagarjunasagar Srisailem Tiger Reserve
Srinivasulu, C., 2002 onwards, Kasu Brahmananda Reddy National Park, Faunal inventorying of Kasu Brahmananda Reddy National Park
Srinivasulu, C. and Bhargavi Srinivasulu, 2002 onwards, Kurnool grasslands, Ranga Reddy District, Hyderabad and Secunderabad environs, and Nagarjunasagar Srisailem Tiger Reserve, Non-Volant small mammals of select areas of Andhra Pradesh

Locations from where *Funambulus palmarum* (Linnaeus, 1766) is known in India and Sri Lanka



Distribution of *Funambulus palmarum* (Linnaeus, 1766) (Endemic to India and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Andhra Pradesh	-	-	-	C. Srinivasulu and Bharagavi Srinivasulu, BIS. Many locations throughout the state	Karimnagar Manthani	18°39'	79°40'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Adilabad	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kurnool	15°35'	78°20'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chennur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kurnool	15°58'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Indhanpally	-	-	Trop. F.	Near Uttoor (19°22' N & 78°46' E)	Pecheruuvu	-	-	Trop. F.	Tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes in Nagarjunasagar Srisaillam TR
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sunnipenta	16°03	78°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kadem	-	-	Trop. F.	Near Uttoor (19°22' N & 78°46' E)	Veligode	-	-	Trop. F.	In Nagarjunasagar Srisaillam TR
Nirmal	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					C. Srinivasulu & Bhargavi Srinivasulu, BIS
Uttoor	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					Tropical dry deciduous teak forest with Terminalia-Anogeissus complex and bamboo brakes. South of Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Chittoor									
Chandragiri Hill	13°35'	79°19'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahbubnagar				
Mamandur	13°44'	79°29'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Amrabad Plateau	16°28'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Talakona	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Farahabad	16°17'	78°41'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah					Mannanur	16°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Koduru	13°58'	79°21'	Trop. F.	Chakraborty <i>et al.</i> (2004). In Balapalli Range. C. Srinivasulu & Bhargavi Srinivasulu, BIS	Medak	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Palakonda Hills	18°36'	83°45'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Danteppally				North of Medak (17°45' N & 78°15' E)
Siddavatam	14°30'	78°59'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Medak	17°45'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
East Godavari					Sangareddy	17°37'	78°05'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Addatigala	17°29'	82°01'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS					Also near Manjira Barrage in Manjira WS
Kakinada	16°56'	82°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nalgonda	16°42'	78°56'	Trop. F.	C. Srinivasulu (pers. comm.)
Mettapalem	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Devarakonda	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nagarjunasagar Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
									Near Kakinada (16°56' N & 82°13' E)
Guntur	16°25'	80°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nellore	13°49'	79°57'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Guntur	16°29'	79°26'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Doravarisatram	14°08'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Macherla	16°35'	80°21'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS	Gudur	15°55'	79°59'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Nagarjunakonda					Kavali	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad	17°15'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nelapattu	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad					Sulurpet	13°42'	80°01'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Tada	13°35'	80°02'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Funambulus palmarum* (Linnaeus, 1766) (Endemic to India and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Prakasam	15°34'	79°07'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Hawsbhavi	14°35'	75°22'	Trop. F.	Ellerman (1961)
Cumbum	15°23'	78°53'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Gadag	15°25'	75°37'	Trop. F.	Ellerman (1961)
Diguvametta	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kolar	13°20'	78°10'	Trop. F.	Ellerman (1961)
Rangareddy	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mandya	-	-	Trop. F.	Ellerman (1961)
Anantagiri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Srirangapatnam	-	-	Trop. F.	Ellerman (1961)
Saroornagar	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kerala	-	-	Trop. F.	P.O. Nameer. Seen in coastal areas and drier tracts, never inside forests.
Suburb of Hyderabad	-	-	Trop. F.	(17°15' N & 78°28' E)	Kerala	-	-	Trop. F.	P.O. Nameer. Seen in coastal areas and drier tracts, never inside forests.
Visakhapatnam	18°20'	82°52'	Trop. F.	C. Srinivasulu & Bhargavi (pers. comm.)	Madhya Pradesh	-	-	-	-
Araku	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.	Balaghat & Mandla	22°17'	80°37'	Trop. F.	Ghose & Bhattacharyya (1995a)
Warnagal	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.	Kanha NP	-	-	Trop. F.	-
Etur	-	-	Trop. F.	Tropical dry deciduous teak mixed bamboo forest. North of Pasra (18°12' N & 80°10' E) in Eturnagar WS	East Nimar	29°21'	78°16'	Trop. F.	Ellerman (1961)
Pasra	18°12'	80°10'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Asiargah	-	-	Trop. F.	-
Tadwai	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.	Hoshangabad	-	-	Trop. F.	-
Venkatapuram	-	-	Trop. F.	Tropical dry deciduous teak mixed bamboo forest. North of Pasra (18°12' N & 80°10' E) in Eturnagar WS	Dhain	22°27'	78°10'	Trop. F.	Ellerman (1961)
Chattisgarh	-	-	-	-	Pachmarhi	22°28'	78°26'	Trop. F.	Ellerman (1961)
Dantewada	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.	Rorighat	-	-	Trop. F.	Ellerman (1961)
Indravati NP	-	-	Trop. F.	Tropical dry deciduous teak mixed bamboo forest. North of Pasra (18°12' N & 80°10' E) in Eturnagar WS	Satpura NP	-	-	Trop. F.	Harshey & Chandra, 2001
Jharkhand	-	-	-	-	West Nimar	21°49'	75°49'	Trop. F.	Ellerman (1961)
Hazaribagh	-	-	Trop. F.	Ghosh and Bhattacharyya (1995), c. 18°44' N & 80°16' E	Dival	-	-	Trop. F.	-
Gajhundi	-	-	Trop. F.	Ellerman (1961)	Maharashtra	-	-	Trop. F.	Ellerman (1961)
Jagodih	-	-	Trop. F.	Ellerman (1961)	Barar region	-	-	Trop. F.	Ellerman (1961)
Karnataka	-	-	-	-	Kolkaz	-	-	Trop. F.	Ellerman (1961)
Bangalore	12°59'	77°35'	Trop. F.	Ellerman (1961)	Rajasthan	-	-	Trop. F.	Sharma (2005), Southern end of Kumbalgarh WS
Bangalore	-	-	Trop. F.	-	Pali & Udaipur	-	-	Trop. F.	Sharma (2005), near Temple in Sacred grove, in Jhadol Taluk
Bellary	15°19'	76°28'	Trop. F.	Ellerman (1961)	Kumbalgarh WS	-	-	Trop. F.	Sharma (2005), near Temple in Sacred grove, in Jhadol Taluk
Vijayanagar	-	-	Trop. F.	-	Udaipur	-	-	Trop. F.	Sharma (2005), near Temple in Sacred grove, in Jhadol Taluk
Dharwar	15°30'	75°20'	Trop. F.	Ellerman (1961)	Ramkunda	-	-	Trop. F.	Sharma (2005), near Temple in Sacred grove, in Jhadol Taluk
Dharwar	-	-	Trop. F.	-	Kamalnath	-	-	Trop. F.	Sharma (2005), near Temple in Sacred grove, in Jhadol Taluk

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Distribution of *Funambulus palmarum* (Linnaeus, 1766) (Endemic to India and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Nal-Mokhi	-	-	Trop. F.	Sharma (2005); in Gogunda Taluk near Jargaji Temple. Sacred grove	Trichy	-	-	-	Trop. F. P. Neelananarayanan, BIS
Phulwari WS	-	-	Trop. F.	Sharma (2005)	Omandur	-	-	-	Trop. F. P. Neelananarayanan, BIS
Orissa					Puttanampatti	10°50'	78°46'	-	Trop. F. Ellerman (1961), J. Joshua, BIS, many locations
Khurda & Cuttack	20°22'	85°46'	Trop. F.	Tiwari et al. (2002), throughout the sanctuary	Vellore	12°56'	79°08'	Trop. F.	J. Joshua, BIS, many locations
Chandaka-Damapara WS					Vellore				
Tamil Nadu									
Kamaraj	-	-	-	J. Joshua, BIS, many locations	Sri Lanka				
Coimbatore	11°15'	77°20'	Trop. F.	J. Joshua, BIS, many locations	Central Province				
Coimbatore	-	-	Trop. F.	Ellerman (1961)	Kandy	7°17'	80°38'	Trop. F.	Ellerman (1961)
Gantha	-	-	Trop. F.	Ellerman (1961)	Kandy	7°15'	80°36'	Trop. F.	Ellerman (1961)
Chennai	13°05'	80°17'	Trop. F.	J. Joshua, BIS, many locations	Peradeniya	7°17'	80°49'	Trop. F.	Ellerman (1961)
Chennai					Urugala				
Dharmapuri & Salem	11°50'	78°16'	Trop. F.	Ellerman (1961)	Nuwara Eliya	6°52'	80°49'	Trop. F.	Ellerman (1961)
Shevaroy Hills	8°10'	77°26'	Trop. F.	Ellerman (1961)	Ambawela	6°48'	80°39'	Trop. F.	Phillips (1980)
Kanyakumari	9°56'	78°07'	Trop. F.	J. Joshua, BIS, in many locations	Bogawantalawa				
Nagercoil	-	-	Trop. F.	Ellerman (1961)	North Central Province				
Madurai	11°26'	76°53'	Trop. F.	Ellerman (1961)	Apura	-	-	Trop. F.	Ellerman (1961)
Madurai					Cheddikulam	8°44'	80°26'	Trop. F.	Ellerman (1961)
Nagapattinam	12°00'	78°00'	Trop. F.	Ellerman (1961)	Mankeni	8°01'	81°29'	Trop. F.	Ellerman (1961)
? Locations					North Western Province				
Nilgiris					Kala-oya	8°05'	80°25'	Trop. F.	Ellerman (1961)
Kil Kotagiri					Karunegala	-	-	Trop. F.	Phillips (1980)
Salem					Mannar	8°53'	79°53'	Trop. F.	Ellerman (1961)
Kurumbupatti					Puttalam	8°02'	79°49'	Trop. F.	Ellerman (1961), Phillips (1980)
Thanjavur					Udugama	7°24'	79°59'	Trop. F.	Ellerman (1961)
? Locations					Sabaragamuwa				
Thiruvarur					Kegalle	7°16'	80°22'	Trop. F.	Phillips (1980)
? Locations					Kegalle				
Tirunelveli					Ratnapura	6°40'	80°23'	Trop. F.	Phillips (1980)
Tirunelveli					Ratnapura				
					Southern Province				
					Galle	6°03'	80°12'	Trop. F.	Phillips (1980)
					Kottawa	6°06'	80°18'	Trop. F.	Ellerman (1961)

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Distribution of *Funambulus palmarum* (Linnaeus, 1766) (Endemic to India and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in
South Asia

	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Hambantota	6°07'	81°07'	Trop. F.	Ellerman (1961); Phillips (1980)
Hambantota	6°06'	80°52'	Trop. F.	Ellerman (1961); Phillips (1980)
Ranna				

Uva Province

Monaragala	6°44'	81°06'	Trop. F.	Ellerman (1961)
Wellawaya				

Western Province

Colombo	6°55'	79°50'	Trop. F.	Phillips (1980)
Colombo				

Kalutara	6°34'	79°57'	Trop. F.	Phillips (1980)
Kalutara				

Matugama	-	-	Trop. F.	Ellerman (1961)
Anasigalla	6°31'	80°07'	Trop. F.	Ellerman (1961)
St. George				

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***Funambulus pennantii* Wroughton, 1905**

LEAST CONCERN in South Asia

Synonyms: *Funambulus pennantii argentescens* Wroughton, 1905; *Funambulus pennantii lutescens* Wroughton, 1905

Order: Rodentia

Family: Sciuridae

Common names: English: Five-striped Palm Squirrel, Northern Palm Squirrel; Bengali: *Kat Berali*; Gujarati: *Khiskoli*; Hindi: *Gilheri*; Telugu: *Aidu-charala Udutha*; Oriya: *Patta Musa*

Taxonomic remarks: Belongs to the subgenus *Prasadsciurus* Moore and Tate, 1965. Ellerman (1961) synonymised *Funambulus pennantii argentescens* Wroughton, 1905 and *Funambulus pennantii lutescens* Wroughton, 1905 with the nominate race. Corbet and Hill (1992) followed the same trend. It has been introduced in northeastern India and Andaman & Nicobar Islands by humans (Kurup, 1968; Saha, 1980)

Habit: Diurnal, semi-arboreal

Habitat: Tropical and subtropical dry deciduous forest, montane forests, grasslands, scrublands, plantations, arable land, rural gardens, urban areas, introduced vegetation

Niche: Tree hollows

Elevation: 0-4,000m

Distribution

Global: Afghanistan, Bangladesh, Iran, India, Nepal, Pakistan
South Asia: Bangladesh, India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [Bangladesh < 20,000; India > 20,000; Nepal < 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh < 2,000; India > 2,000; Nepal < 2,000; Pakistan > 2,000]

Locations/subpopulations: Many/many, Contiguous

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% due to habitat loss, urbanization, tree cutting

Threats

Habitat loss and degradation due to small-scale logging, expansion of human settlements, caught and kept as pets

Trade: For local consumption and as pets

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, informal sightings, literature, museum specimens; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

Bangladesh: Near Threatened

Rationale: Restricted in distribution (range and area) with a few major threats that do not qualify the species to be categorised as Vulnerable.

India: Least Concern

Nepal: Near Threatened

Rationale: Restricted in distribution (range and area) with a few major threats that do not qualify the species to be categorised as Vulnerable.

Pakistan: Least Concern

Wildlife Legislation:

Bangladesh: None

India: Schedule IV of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Eturnagaram WS, Gundla Brahmeshwaram Metta WS; Kasu Brahmananda Reddy NP; Kawal WS; Mahaveer Harina Vanasthali NP; Manjira WS; Nagarjunasagar Srisailem TR; Nelapattu BS; Pranahita WS; Pocharam WS; Siwaram WS

Gujarat: Balaram-Ambaji WS, Jessore WS, Narayan Sarovar WS

Orissa: Chandaka-Dampara WS

Rajasthan: Desert National Park

Recommendations

Research: Taxonomic research

Management: Public awareness

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Kankane, 2004; Srinivasulu *et al.*, 2004; Tiwari *et al.*, 2002 Ghose *et al.*, 2004; BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu, Hassan *et al.*, J. Joshua

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

Srinivasulu, C. and Bhargavi Srinivasulu, Many locations in Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh

Srinivasulu, C., Nagarjunasagar Srisailem Tiger Reserve, 1996 onwards, Biodiversity of Nagarjunasagar Srisailem Tiger Reserve

Distribution of *Funambulus pennantii* Wroughton, 1905 in South Asia (Bangladesh, India, Nepal and Pakistan) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Naogaon	-	-	-	Hassan <i>et al.</i> , BIS. Threats include habitat loss	Nalgonda	16°42'	78°56'	Trop. F.	C. Srinivasulu (pers. comm.)
					Devarakonda	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
					Nagarjunasagar Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
INDIA					Rangareddy	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Andhra Pradesh					Anantagiri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Adilabad	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Saroomagar	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS. Suburb of Hyderabad (17°15' N & 78°28' E)
Chennur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.					
Indhanpally	-	-	Trop. F.	Near Utnoor (19°22' N & 78°46' E)	Srikakulam	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.	Telineelapuram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS. Near Naupada Swamps (18°34' N & 84°18'E)
Kadem	-	-	Trop. F.	Near Utnoor (19°22' N & 78°46' E)	Tekkali	18°37'	84°14'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Nirmal	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
Utnoor	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Visakhapatnam	18°20'	82°52'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Guntur					Ananthagiri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Guntur	16°25'	80°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Borra caves	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Macherla	16°29'	79°26'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Tyda	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.
Nagarjunakonda	16°35'	80°21'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS	Near Sringavarapukota	-	-	Trop. F.	(18°07' N & 83°10' E)
Hyderabad					Visakhapatnam	18°20'	82°52'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Hyderabad	17°15'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Warnagal	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.
Karimnagar					Etur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS. Tropical dry deciduous teak mixed bamboo forest. North of Pasra (18°12' N & 80°10' E) in Etur nagaram WS
Manthani	18°39'	79°40'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Pasra	18°12'	80°10'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kurnool	15°35'	78°20'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Tadwai	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.
Kurnool	15°35'	78°20'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Venkatapuram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS. Tropical dry deciduous teak mixed bamboo forest. North of Pasra (18°12' N & 80°10' E) in Etur nagaram WS
Sunnipenta	16°03'	78°54'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS. In Nagarjunasagar Srisailem TR					
Mahbubnagar					Bihar				
Amrabad Plateau	16°28'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Darbhanga	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Farahabad	16°17'	78°41'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Bhagownie	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Mannanur	16°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Bhunar	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Medak					Gaya	-	-	Trop. F.	Ghose <i>et al.</i> (2004); c. 427m
Dantepally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS.	Singar	-	-	Trop. F.	Ghose <i>et al.</i> (2004); c. 427m
Medak	17°45'	78°15'	Trop. F.	North of Medak (17°45' N & 78°15' E)					
Sangareddy	17°37'	78°05'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS					
				Also near Manjira Barrage in Manjira WS					

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Distribution of *Funambulus pennantii* Wroughton, 1905 in South Asia (Bangladesh, India, Nepal and Pakistan) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Gujarat				
Bachcham	-	-	Trop. F.	J. Joshua, BIS, in many localities
Sadla	-	-	Trop. F.	Ellerman (1961)
Satapur	-	-	Trop. F.	Ellerman (1961)
Banaskantha				
Danta	-	-	Trop. F.	Ellerman (1961)
Deesa	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Lunwa	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Palanpur	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004); near Balram river
Junagadh				
Junagadh	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Talala	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Kachch				
Anjar	-	-	Trop. F.	J. Joshua, BIS, in many localities
Banni	-	-	Trop. F.	J. Joshua, BIS, in many localities
Bhuj	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004); J. Joshua, BIS, in many localities
Charwar	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Nokania	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Panchmahals				
Lunavada	23°08'	73°37'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Rajkot				
Rajkot	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Wankaner	22°37'	70°56'	Trop. F.	Ghose <i>et al.</i> (2004)
Surat				
Sirwan	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Surendranagar				
Satapur	-	-	Trop. F.	Ghose <i>et al.</i> (2004) in Dhrangadra
Himachal Pradesh				
Kangra				
Dhamtal	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Jharkhand				
Girdih				
Parasnath	-	-	Trop. F.	Ghose <i>et al.</i> (2004)

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Hazaribagh				
Jagodih	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Nimiaghath	-	-	Trop. F.	Ghose <i>et al.</i> (2004); c. 305m
Palamau				
Datonganj	24°02'	84°04'	Trop. F.	Ghose <i>et al.</i> (2004)
Palmau	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Pashchim				
Singbhum	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Barkagaon	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Chaibassa	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Lohra	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Luia	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Karnataka				
Dhanwar				
Dhanwar	15°30'	75°20'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Madhya Pradesh				
Bhind				
Bhind	26°30'	78°35'	Trop. F.	Ellerman (1961)
Baleghat				
Baher	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Ouda	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Santia NP	-	-	Trop. F.	Ghose <i>et al.</i> (2004); 8 km n of Kisli in Kanha
East Nimar				
Asigarh	21°29'	76°16'	Trop. F.	Ellerman (1961)
Bodwad	20°54'	76°01'	Trop. F.	Ellerman (1961)
Chandgarh	-	-	Trop. F.	Ghose <i>et al.</i> (2004); alt. c. 398m
Ganon	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Hewra	-	-	Trop. F.	Ellerman (1961)
Parola	20°53'	75°07'	Trop. F.	Ellerman (1961)
Gwallior				
Agar Malwa	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Chatigaon	26°03'	77°50'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004); alt. c. 274m
Chorepura	25°43'	77°43'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004); alt. c. 336m
Guna	24°30'	77°30'	Trop. F.	Ghose <i>et al.</i> (2004)
Morari	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Rothia	-	-	Trop. F.	Ghose <i>et al.</i> (2004)

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Distribution of *Funambulus pennantii* Wroughton, 1905 in South Asia (Bangladesh, India, Nepal and Pakistan) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Hoshangabad	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Karad	17°17'	74°12'	Trop. F.	Ellerman (1961)
Bori WS	22°27'	78°10'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)	Rajasthan				
Dhain	-	-	Trop. F.	Ellerman (1961)	Ajmer				
Lohagpur	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)	Rajoshi RF	-	-	Trop. F.	Ghose <i>et al.</i> (2004); c. 11km southeast of Ajmer
Sakot	-	-							
Rewa	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Barmer & Jaisalmer				
Rewa	-	-			Desert NP	-	-	Semi. D	Kankane (2004)
Sehore	23°12'	77°08'	Trop. F.	Ellerman (1961)	Bikaner				
Sehore	-	-			Bikaner	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Maharashtra					Kotri	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Bezar	-	-	Trop. F.	Ellerman (1961), in Pili and Sipna					
Chandrapur	19°57'	79°18'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)	Jaipur				
Chandrapur	20°00'	79°28'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)	Dudu	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Chirchpalli					Kishengarth	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Jalgaon					Sambhar	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Bhaunti	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Jaisalmer				
Bhusawal	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Nokh	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Chalisgaon	-	-	Trop. F.	Ghose <i>et al.</i> (2004)					
Godasgaon	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Jodhpur				
Edlabad	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Beriganga	-	-	Trop. F.	Ghose <i>et al.</i> (2004); c. 19km north of Jodhpur
Maloa	-	-	Trop. F.	Ghose <i>et al.</i> (2004); in Vawal taluk					
Moharala	-	-	Trop. F.	Ghose <i>et al.</i> (2004); in Vawal taluk	Mandore	-	-	Trop. F.	Ghose <i>et al.</i> (2004); c. 12km north of Jodhpur
Pachora	-	-	Trop. F.	Ghose <i>et al.</i> (2004)					
Vawal	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Sirohi				
Mumbai	18°58'	72°49'	Trop. F.	Ellerman (1961)	Mount Abu	24°36'	72°42'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Mumbai									
Nagpur					Sri Ganga nagar				
Khindsi	-	-	Trop. F.	Ghose <i>et al.</i> (2004); c. 4km North of Ramtek	Asarjana	-	-	Trop. F.	Ghose <i>et al.</i> (2004); 15km north of Nohar
Mansar	-	-	Trop. F.	Ghose <i>et al.</i> (2004); also at Wahitola	Diplana	-	-	Trop. F.	Ghose <i>et al.</i> (2004); 20km east of Nohar
Nasik	20°13'	74°05'	Trop. F.	Ellerman (1961)	Udaipur				
Nasik					Udaipur	-	-	Trop. F.	Ghose <i>et al.</i> (2004); forest near Udaipur lake
Pune	18°32'	73°52'	Trop. F.	Ellerman (1961)	Kankroli	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Poona					Jagmundi	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Satara	18°01'	75°31'	Trop. F.	Ellerman (1961)	Orissa				
Madha					Khurda & Cuttack				
					Daranigariha	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), c. 20°22' N & 85°46' E

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Distribution of *Funambulus pennantii* Wroughton, 1905 in South Asia (Bangladesh, India, Nepal and Pakistan) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Deras	-	-	Trop. F.	Tiwari <i>et al.</i> (2002), c. 20°22' N & 85°46' E	Uttar Pradesh Agra	-	-	Trop. F.	Ghose <i>et al.</i> (2004); in cantonment area
Bolangir Lerkpaley	-	-	Trop. F.	Ghose <i>et al.</i> (2004); c. 5km south of Bolangir	Agra	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Boudh Khondmals- Katagarh	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Bahraich Bahraich	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Cuttack Nandankanan	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Bijnaur Bijnaur	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Dhenkanal Tikarpara	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Gorakhpur Gorakhpur	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Ganjam Tarasingi	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Mirzapur Mirzapur	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Kalahandi Madanpur	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Lucknow Lucknow	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Mayurbhanj Baripada	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Philibit Philibit	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004), also at Rohilkund
Puri Baligai	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Varnasi Varnasi	-	-	Trop. F.	Ghose <i>et al.</i> (2004); also in cantonment area
Sambalpur Rairakhol	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	West Bengal Howrah	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Punjab Hoshiarpur Hoshiarpur	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Baliley Belur	-	-	Trop. F.	Ghose <i>et al.</i> (2004) Ghose <i>et al.</i> (2004)
Gurdaspur Madhupur	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Hugli Chandernagar	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Uttaranchal Nainital Ramnagar	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004); in Corbett NP; Also at Dehra and Jhama	Kochbihar Haldibari	26°20'	88°46'	Trop. F.	Ellerman (1961)
?Almora Kumaon	-	-	Trop. F.	Ellerman (1961)	Kolkatta Kolkatta	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
					Medinipur Salbani	-	-	Trop. F.	Ellerman (1961)

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Distribution of *Funambulus pennantii* Wroughton, 1905 in South Asia (Bangladesh, India, Nepal and Pakistan) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Purulia	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Chakri	32°47'	73°28'	Trop. F.	Ghose <i>et al.</i> (2004)
Inampur	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Kallar Kahar	32°47'	72°42'	Trop. F.	Ghose <i>et al.</i> (2004)
Mambhum	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Rawalpindi	33°36'	73°04'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Puruliya	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Sodhi	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Raghunathpur	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Sargodha	30°11'	71°28'	Trop. F.	Ellerman (1961)
Chalisgaon	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Kallar Kahar	-	-	Trop. F.	Ellerman (1961)
NEPAL					Bohara	28°26'	69°40'	Trop. F.	Ellerman (1961)
? location	-	-	Trop. F.	Ghose <i>et al.</i> (2004)	Kashmor	27°51'	69°07'	Trop. F.	Ellerman (1961)
East Nepal					Hyderabad	24°44'	67°36'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Banbassa	-	-	Trop. F.	Ellerman (1961)	Gharo	-	-	Trop. F.	Ghose <i>et al.</i> (2004)
Tribeni	26°55'	87°17'	Trop. F.	Ellerman (1961)	Golam	25°24'	68°22'	Trop. F.	Ghose <i>et al.</i> (2004)
PAKISTAN					Hyderabad	24°32'	67°37'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Baluchistan					Mirpur Sikra	28°15'	68°50'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)
Kelat	27°06'	65°34'	Trop. F.	Ellerman (1961)	Khairpur	27°40'	68°22'	Trop. F.	Ellerman (1961)
Kelat	27°30'	66°00'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)	Jacobabad	-	-	Trop. F.	Ellerman (1961)
Mand	-	-	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)	Thatta	-	-	Trop. F.	Ellerman (1961)
Punjgur	26°40'	64°15'	Trop. F.	Ghose <i>et al.</i> (2004)	Naundero	-	-	Trop. F.	Ellerman (1961)
Turbat	25°59'	63°00'	Trop. F.	Ellerman (1961); Ghose <i>et al.</i> (2004)					
Quetta	33°39'	67°00'	Trop. F.	Ghose <i>et al.</i> (2004)					
Pishin	-	-	Trop. F.	Ghose <i>et al.</i> (2004)					
North West Frontier Province									
Kohat	33°42'	72°00'	Trop. F.	Ellerman (1961)					
Kohat	-	-	Trop. F.	Ellerman (1961)					
Peshawar	30°17'	68°03'	Trop. F.	Ellerman (1961)					
Peshawar	-	-	Trop. F.	Ellerman (1961)					
Punjab									
Ara	32°51'	73°47'	Trop. F.	Ellerman (1961)					
Choa	-	-	Trop. F.	Ellerman (1961)					
Multan	30°11'	71°28'	Trop. F.	Ellerman (1961)					
Multan	-	-	Trop. F.	Ellerman (1961)					
Rawalpindi	33°37'	73°06'	Trop. F.	Ghose <i>et al.</i> (2004)					
Chak-Lala	-	-	Trop. F.	Ghose <i>et al.</i> (2004)					

Locations from where *Funambulus pennantii* Wroughton, 1905 is known in Bangladesh, India, Nepal and Pakistan



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***Funambulus sublineatus* (Waterhouse, 1838)**

VULNERABLE

Synonyms: *Sciurus sublineatus* Waterhouse, 1838; *Sciurus delesserti* Gervais, 1841; *Sciurus trilineatus* Kelaart, 1852; *Sciurus palmarum* var. *obscura* Pelzen & Kohl, 1886; *Funambulus kathleenae* Thomas & Wroughton, 1915; *Tamoides sublineatus*; Phillips, 1935

Order: Rodentia

Family: Sciuridae

Common names: English: Dusky-striped Squirrel

Taxonomic remarks: Belongs to the subgenus *Funambulus* Lesson, 1835. Ellerman(1961) and Corbet and Hill 91992)

recognised above mentioned subspecies from the region

Habit: Diurnal, semi-arboreal

Habitat: Tropical evergreen forest [In Sri Lanka, found in low country wet to mid montane wet zone]

Niche: Evergreen patches in secondary and primary forest [In Sri Lanka, low land rainforest and montane rainforest]

Elevation: Unknown

Distribution

Global: Endemic to South Asia

South Asia: India, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India 16,000; Sri Lanka 6,500]

Area of Occupancy: 501- 2,000 sq km [India 480; Sri Lanka 195]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of 21-50% due to loss of trees and reeds

Threats

Habitat loss and degradation due to selective logging, collection of non-wood vegetation, forest fires

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in the population at the rate of 20% or more in last 10 years and a similar trend in the future is predicted due to habitat loss

Data source

Informal sightings; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE B2ab(ii,iii,iv)**

Rationale: Restricted in area of occupancy, many but fragmented locations, with major threats affecting habitat area, quality and populations.

National Status (IUCN Ver 3.0)

India: Endangered B2ab(ii,iii,iv)

Rationale: Restricted in area of occupancy, many but fragmented locations, with major threats affecting habitat area, quality and populations. Since there is no continuity in the distribution between mainland India and Sri Lanka, the category is retained.

Sri Lanka: Endangered B2ab(ii,iii,iv)

Rationale: Restricted in area of occupancy, many but fragmented locations, with major threats affecting habitat area, quality and populations. Since there is no continuity in the distribution between mainland India and Sri Lanka, the category is retained.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Kerala: Silent Valley NP, Thekkadi BS, Chimmony WS, Periyar TR, Wayanad WS

Sri Lanka

Central Province: Horton Plains NP; Sabaragamuwa Province: Adam's Peak WS

Recommendations

Research: Survey, limiting factor research

Management: Habitat management, captive breeding for species recovery

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; IUCN, WCMC & FAO. 1997; Phillips, 1932; Srinivasulu *et al.*, 2004 BIS on species by: W.L.D.P.T.S. de A. Goonatilake

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

India

S. Molur, Coorg, 2003 onwards, Distribution and status of volant and non-volant small mammals

Sri Lanka

YZA, Yagirala FR, Kalutara District, 1997

Zoysa & Raheem, Sinharaja FR, Ratnapura District, 1997

IUCN/WCMC/FAO, Agaraboppat, Mipilmana, Horton Plains,

Ohiya, Pedro, Nuwara Eliya District, Diyadawa, Matara

District, Namulukula, Thangamalai, Badulla District, 1997

Distribution of *Funambulus sublineatus* (Waterhouse, 1838) (Endemic to India and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA					Tamil Nadu				
Berhleppe	-	-	Trop. F.	Ellerman (1961)	Dindugul	-	-	Trop. F.	Ellerman (1961); near Kodaikanal (10°14' N & 77°29' E)
Shernelly	-	-	Trop. F.	Ellerman (1961)	Bombay Shola	-	-	Trop. F.	Ellerman (1961)
Karnataka									
Kodagu	-	-	Trop. F.	Ellerman (1961); in Huvinakadu Estate	Nilgiris	11°21'	76°49'	Trop. F.	Ellerman (1961)
Kutta	12°24'	75°44'	Trop. F.	C. Srinivasulu, Bhargavi Srinivasulu (pers. comm.), observed in April, 2004; near Madikeri; near a stream and in secondary forest	Conoor	11°26'	76°53'	Trop. F.	Ellerman (1961)
Shanti Estate	-	-	Trop. F.	Ellerman (1961)	Kil Kotagiri	-	-	Trop. F.	Ellerman (1961)
Kerala					SRI LANKA				
Erakulam	9°58'	76°14'	Trop. F.	Ellerman (1961)	Central Province				
Cochin	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 1999	Matale	7°31'	80°38'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Kannur	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 1999	Gammaduwa	7°34'	80°42'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Aralam	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 1999	Matale	7°31'	80°38'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Idukki	-	-	Trop. F.	Pradhan (2002)	Nuwara Eliya	-	-	Trop. F.	IUCN, WCMC & FAO (1997)
Eravikulam NP	9°32'	77°12'	Trop. F.	P.O. Nameer (pers. comm.), observed in 2001	Agraboppath	6°13'	80°32'	Trop. F.	IUCN, WCMC & FAO (1997)
Penyar TR	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 2001	Diyadawa	6°59'	80°48'	Trop. F.	IUCN, WCMC & FAO (1997)
Thattakad BR	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 1999	Pedro	5°56'	80°32'	Trop. F.	IUCN, WCMC & FAO (1997)
Kozhikode	11°40'	75°40'	Trop. F.	Ellerman (1961); could be Kutyadi	Mataara	-	-	Trop. F.	IUCN, WCMC & FAO (1997)
Kuttyani	10°46'	76°42'	Trop. F.	P.O. Nameer (pers. comm.), observed in 1990	Meeplimmana	6°49'	80°50'	Trop. F.	IUCN, WCMC & FAO (1997)
Palakkad	8°44'	77°04'	Trop. F.	Ellerman (1961)	Ohya	-	-	Trop. F.	Ellerman (1961)
Silent Valley NP	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 2000	Sabaragamuwa				
Thiruvananthapuram	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 2000	West Haputale	6°47'	80°50'	Trop. F.	Ellerman (1961)
Ponnudi	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 2000	Pittipola	-	-	Trop. F.	Ellerman (1961)
Thrissur	11°25'	76°10'	Trop. F.	Ellerman (1961)	Ratnapura	6°48'	80°29'	Trop. F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Chimmoni WS	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 2000	Adams Peak	6°44'	80°26'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Wynaad	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 2000	Gilimale	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Wynaad	-	-	Trop. F.	P.O. Nameer (pers. comm.), observed in 2000	Iratna	6°30'	80°35'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
					Rakwana	6°40'	80°23'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
					Ratnapura	6°40'	80°23'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
					Southern Province				
					Galle	6°03'	80°12'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
					Galle	6°06'	80°18'	Trop. F.	Ellerman (1961)
					Kottawa	6°06'	80°18'	Trop. F.	Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Funambulus sublineatus* (Waterhouse, 1838) (Endemic to India and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
Uva Province				
Badulla	6°56'	81°07'	Trop. F.	IUCN, WCMC & FAO (1997)
Namunukula	-	-	Trop. F.	Ellerman (1961)
Pattipola	7°02'	80°56'	Trop. F.	IUCN, WCMC & FAO (1997)
Thangamalai				
Western Province				
Kalutara	6°59'	80°26'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Kalugala	6°34'	79°57'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Kalutara				
Matugama	6°31'	80°06'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Yagiralala FR	6°22'	80°10'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS

Locations from where *Funambulus sublineatus* (Waterhouse, 1838) is known in India and Sri Lanka



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Funambulus tristriatus* (Waterhouse, 1837)**

NEAR THREATENED

Synonyms: *Sciurus tristriatus* Waterhouse, 1837; *Sciurus (Tamias) dussumieri* Milne-Edwards, 1867; *Funambulus wroughtoni* Ryley, 1913; *Funambulus tristriatus* Wroughton, 1916; *Funambulus tristriatus annandalei* Robinson, 1917; *Funambulus thomasi* Wroughton & Davidson, 1919

Order: Rodentia

Family: Sciuridae

Common names: English: Jungle Striped Squirrel, Western Ghats Striped Squirrel

Taxonomic remarks: Belongs to subgenus *Funambulus* Lesson, 1835. We follow Ellerman (1961) in retaining *Funambulus tristriatus tristriatus* (Waterhouse, 1837) and *Funambulus tristriatus wroughtoni* (Ryley, 1913). However, Corbet and Hill (1992) retained the subspecies *Funambulus tristriatus numarius* Wroughton, 1916 and *Funambulus tristriatus annandalei* Robinson, 1917. Following Ellerman and Morrison-Scott (1951) we do not treat the later taxon as distinct due to similarities between them and two accepted subspecies

Habit: Diurnal, semi-arboreal

Habitat: Tropical evergreen forest, plantations, pasturelands

Niche: Semi-evergreen, evergreen, moist deciduous forests and tea and coffee estates

Elevation: Unknown

Distribution

Global: Endemic to India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,000 sq km

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% in the last 10 years and a similar trend in the next 10 years is predicted due to increase in plantations, human settlements and general alteration of habitat

Threats

Habitat loss and degradation due to agro-industry farming, large wood plantations, small-scale logging, increase in human settlements, pest control by means of pesticides and poisoning

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Declining at > 10% in 20 years. Predicted decline > 10% in 10 years

Data source

Indirect information, Informal sightings, literature, museum specimens; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) NEAR THREATENED

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Kerala: Aralam WS, Neyyar WS, Parambikulam WS, Peppara WS, Peechi-Vazhani WS, Silent Valley NP, Wyanad WS;

Maharashtra: Sanjay Gandhi NP

Tamil Nadu: Kalakkad-Mundunthurai TR, Srivilliputtur Grizzled Giant Squirrel Sanctuary, Indira Gandhi NP

Karnataka: Nagarahole NP

Recommendations

Research: Survey studies

Management: Monitoring

Captive stocks: None

Comments

None

Sources

Ellerman, 1961; Pradhan & Kurup, 2001; Pradhan, 2002; Yazdani *et al.*, 1992; Srinivasulu *et al.*, 2004 BIS on species by: J. Joshua, P. Padmanabhan

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

Easa *et al.*, Kerala, 1993-1998, Survey of small mammals with special reference to endangered species
Visa, A., P.O. Nameer and M.M. Animon, February, 2003, LRS Thiruvazhamkundu, Palakkad District, Kerala., Diversity and abundance of rodents and insectivores in KAU campus, Palakkad and Thrissur
S. Molur, Coorg, 2003 onwards, Distribution and status of volant and non-volant small mammals

Distribution of *Funambulus tristriatus* (Waterhouse, 1837) (Endemic to India) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Karnataka									
Kotengadi Estate	-	-	Trop. F.	Ellerman (1961)	Kannur	-	-	Ever. F.	P.O. Nameer, R. Hari, A. Visa & C.D. Roby (pers. comm.)
Shernhalli	-	-	Trop. F.	Ellerman (1961)	Aralam WS	-	-	Ever. F.	P.O. Nameer, R. Hari, A. Visa & C.D. Roby (pers. comm.)
Chamarajanagar	-	-	Trop. F.	Pradhan and Kurup (2001)	Kozhikode	11°40'	75°40'	Trop. F.	Ellerman (1961)
Bandipur WS	-	-	Trop. F.	Pradhan and Kurup (2001)	Kuttyani	11°40'	75°40'	Trop. F.	Ellerman (1961)
Dharwar	15°30'	75°20'	Trop. F.	Ellerman (1961)	Palakkad	-	-	Trop. F.	J. Joshua, BIS; P.O. Nameer (pers. comm.)
Dharwar	15°30'	75°20'	Trop. F.	Ellerman (1961)	Neilampathy Hills	-	-	Trop. F.	J. Joshua, BIS; P.O. Nameer (pers. comm.)
Kodagu	-	-	Trop. F.	Ellerman (1961)	Parambikulam WS	-	-	Ever. F.	P.O. Nameer (pers. comm.)
Makut	-	-	Trop. F.	Ellerman (1961)	Silent Valley NP	10°46'	76°42'	Trop. F.	P.O. Nameer (pers. comm.)
Nagarhole NP	-	-	Dry D.F.	Sanjay Molur & Payal Molur (pers. obs.) April 2005	Thiruvazhankunnu	-	-	Trop. F.	A. Visa <i>et al.</i> , BIS; in Livestock Research Station
Madikeri	12°24'	75°44'	Trop. F.	Sanjay Molur, Payal Molur, C. Srinivasulu, Bhargavi Srinivasulu (pers. comm.), April, 2004; near Madikere; in coffee estates, home gardens and secondary forest	Thiruvananthapuram	8°44'	77°04'	Trop. F.	Ellerman (1961)
Shanti Estate	12°24'	75°44'	Trop. F.	Sanjay Molur, Payal Molur, C. Srinivasulu, Bhargavi Srinivasulu (pers. comm.), April, 2004; near Madikere; in coffee estates, home gardens and secondary forest	Ponmudi	8°44'	77°04'	Trop. F.	Ellerman (1961)
Sirimangala	12°01'	76°00'	Trop. F.	Ellerman (1961)	Thrissur	10°31'	76°13'	Trop. F.	C. Srinivasulu and P.O. Nameer (pers. comm.); near Thrissur
Virajpet	12°12'	75°48'	Trop. F.	Ellerman (1961)	Mannuthy	10°31'	76°13'	Trop. F.	Visa <i>et al.</i> , BIS; P.O. Nameer & C. Srinivasulu (pers. comm.); near Thrissur
Wotekolli	-	-	Trop. F.	Ellerman (1961)	Vellanikara	10°31'	76°13'	Trop. F.	Visa <i>et al.</i> , BIS; P.O. Nameer & C. Srinivasulu (pers. comm.); near Thrissur
Mysore	-	-	Trop. F.	Ellerman (1961)	Peechi-Vazhani WS	-	-	Trop. F.	P.O. Nameer & C. Srinivasulu (pers. comm.)
Kardibetta	-	-	Trop. F.	Ellerman (1961)					
Shimoga	14°14'	74°50'	Trop. F.	Ellerman (1961)	Maharashtra				
Gersoppa	14°14'	74°50'	Trop. F.	Ellerman (1961)	Mumbai	19°21'	72°50'	Trop. F.	Yazdani <i>et al.</i> (1992)
Uttar Kanara	15°08'	74°56'	Trop. F.	Ellerman (1961)	Sanjay Gandhi NP	19°21'	72°50'	Trop. F.	Yazdani <i>et al.</i> (1992)
Devikop	-	-	Trop. F.	Ellerman (1961)		19°21'	72°50'		
Potoli	-	-	Trop. F.	Ellerman (1961)	Satara	17°22'	73°44'	Trop. F.	Ellerman (1961)
Sirsi	14°40'	74°51'	Trop. F.	Ellerman (1961)	Helwark	17°22'	73°44'	Trop. F.	Ellerman (1961)
Kerala					Raigarh	18°43'	73°23'	Trop. F.	Ellerman (1961)
Bonakad	-	-	Trop. F.	Ellerman (1961)	Khandala	18°43'	73°23'	Trop. F.	Ellerman (1961)
Khanni	-	-	Trop. F.	J. Joshua, BIS	Ratnagiri	17°43'	73°23'	Trop. F.	Ellerman (1961)
Kulathupala	-	-	Trop. F.	J. Joshua, BIS	Khed	17°43'	73°23'	Trop. F.	Ellerman (1961)
Merchiston	-	-	Trop. F.	Ellerman (1961)	Thana	19°14'	73°02'	Trop. F.	Ellerman (1961)
Idukki	-	-	Trop. F.	Pradhan (2002)	Thana	19°14'	73°02'	Trop. F.	Ellerman (1961)
Eravikulam NP	9°49'	77°09'	Trop. F.	J. Joshua, BIS					
Kallar	9°32'	77°12'	Trop. F.	C. Srinivasulu (pers. comm.)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Funambulus tristriatus* (Waterhouse, 1837) (Endemic to India) from literature and recent field studies ... Contd.

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

Tamil Nadu

Nilgiris
Ooty

11°24' 76°42' Trop. F. C. Srinivasulu (pers. comm.)

Locations from where *Funambulus tristriatus*
(Waterhouse, 1837) is known in India



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert;
Mang. F. - Mangrove Forest; Mon. G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest;
Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains;
S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest;
Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Hylopetes alboniger (Hodgson, 1836)

NEAR THREATENED in South Asia

Synonyms: *Sciuropterus alboniger* Hodgson, 1836 ?; *Pteromys leachii* Gray, 1837; *Sciuropterus turnbulli* Gray, 1837

Order: Rodentia

Family: Sciuridae

Common names: English: Parti-coloured Flying Squirrel

Taxonomic remarks: Belongs to subgenus *Hylopetes* Thomas, 1908. Ellerman (1961) included two subspecies – *Hylopetes alboniger alboniger* (Hodgson, 1936) and *Hylopetes alboniger leonardi* (Thomas, 1921) of which the latter does not occur in South Asia. However, Corbet and Hill (1992) synonymised *Hylopetes alboniger leonardi* with the nominate race and list two extralimital races, namely, *Hylopetes alboniger orinus* Allen, 1940 and *Hylopetes alboniger chiangfengensis* Wang and Lu, 1996

Habit: Nocturnal, arboreal

Habitat: Tropical and subtropical montane forests

Niche: In tree hollows

Elevation: up to 4,500m

Distribution

Global: Bhutan, China, India, Myanmar, Nepal

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan not known; India > 20,000; Nepal < 5,000]

Area of Occupancy: > 2,001 sq km [Bhutan not known; India > 2,000; Nepal < 500]

Locations/subpopulations: 9/4, Fragmented

Habitat status: Quantitative and qualitative decline at the rate of < 20 % in past 20 years and a similar trend predicted in next 20 years due to encroachment inside forests for human settlements and agriculture, timber collection, change in land use pattern and dam construction

Threats

Habitat loss due to shifting (Jhum) agriculture, small wood plantations, mining activities, infrastructure development, establishment of human settlements, construction of dams, forest fires and civil unrest

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Declining. Rate unknown

Data source

Field study, literature, museum records; observed; estimated; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **NEAR THREATENED** in South Asia

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

National Status (IUCN Ver. 3.0)

Bhutan: Data Deficient

Rationale: Exact location not known.

India: Near Threatened

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Nepal: Endangered ↓ Vulnerable

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

Bhutan: None

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

India Arunachal Pradesh: Namdapha NP

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

The taxon hunted for sustenance/subsistence living

Sources

Ellerman, 1961; Ghose & Chakraborty, 1983; Mishra *et al.*, 2004; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

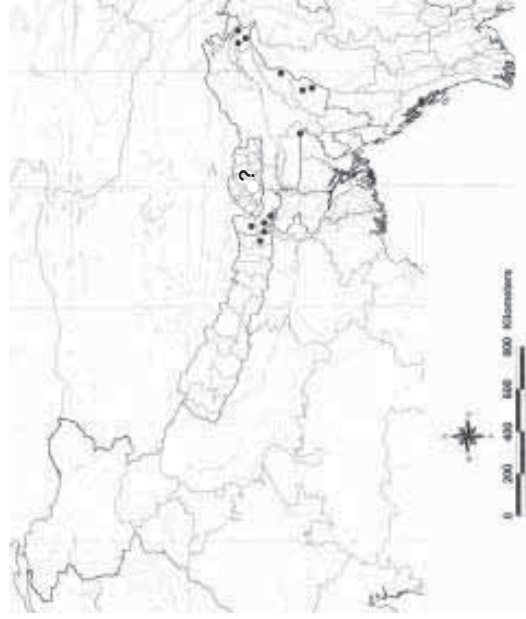
Datta, A., C. Mishra, and M.D. Madhusudan, Tawang, West Kameng Districts, Arunachal Pradesh, 2003, High Altitude Faunal Survey and Vegetation/Habitat mapping

Distribution of *Hylopetes alboniger* (Hodgson, 1836) endemic to Bhutan, India and Nepal from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BHUTAN ? Locality	-	-	-	Srinivasulu <i>et al.</i> (2004)	NEPAL Sipuri	-	-	-	Ellerman (1961)
INDIA									
Arunachal Pradesh									
Changlang	28°01'	96°14'	Mon. St. F.	Ellerman (1961)					
Dening	27°23' to 27°39'	96°15' to 96°58'	Mon. St. F.	Mishra <i>et al.</i> (2004)					
Namdapha NP									
Meghalaya									
Jaintia Hills	-	-	Trop. F.	Ellerman (1961), in Jaintia Hills (25°30' N & 92°15' E)					
Khonshnong									
Manipur									
Senapati	-	-	Trop. F.	Ellerman (1961), near Karong (25°18' N & 94°03' E)					
Machi									
Nagaland									
Tuensang	26°15'	94°15'	Mon. St. F.	Ellerman (1961), in Naga Hills					
Mokokchung									
Sikkim									
? Location	-	-	Mon. St. F.	Ghose & Chakraborty (1983); populations declining due to habitat loss					
West Bengal									
Darjiling	-	-	Trop. F.	Ellerman (1961)					
Ambutia									
Jalpaiguri	-	-	Mon. St. F.	Ellerman (1961), in Bhutan Duars					
Bharnabari									
Pashok	27°04'	88°24'	Temp. F.	Ellerman (1961)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Hylopetes alboniger* (Hodgson, 1836) is known from Bhutan, India and Nepal



Hylopetes baberi (Blyth, 1847)

Synonyms: *Sciuropterus baberi* Blyth, 1847; *Hylopetes fimbriatus baberi* (Blyth, 1847)

Order: Rodentia

Family: Sciuridae

Common names: English: Small Afghan Flying Squirrel

Taxonomic remarks: Belongs to subgenus *Eoglaucmys* Howell, 1915. Ellerman (1940, 1961), and Ellerman and Morrison-Scott (1951) treated this taxon as subspecies of *Hylopetes fimbriatus* (Gray, 1837). Chakraborty (1981) elevated it to species rank, a trend that was accepted by Corbet and Hill (1992) and Hoffmann *et al.* (1993)

Habit: Nocturnal, arboreal

Habitat: Tropical and subtropical montane forests

Niche: In tree hollows

Elevation: up to 4,500m

Distribution

Global: Afghanistan, India, Pakistan

South Asia: India, Pakistan

Extent of Occurrence: 5,000 - 20,000 sq km [India < 20,000; Pakistan < 5,000]

Area of Occupancy: > 2,001 sq km [India < 2,000; Pakistan < 500]

Locations/subpopulations: 4/2, Fragmented

Habitat status: Loss of habitat, fragmentation, human interference, change in quality

Threats

Habitats from where it is reported is threatened due to anthropogenic activities, war

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field survey, informal sightings, literature, museum records; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE in South Asia B1ab(iii)**

Rationale: Restricted in extent of occurrence, few and fragmented locations, with major threats affecting habitat area and quality. Since the neighbouring Afghanistan population is also threatened by war, the status in South Asia is retained.

National Status (IUCN Ver. 3.0)

India: Vulnerable B1ab(iii)+2ab(iii)

Restricted in extent of occurrence, few and fragmented locations, with major threats affecting habitat area and quality. Since the neighbouring Pakistan population is also threatened by war, the status in South Asia is retained.

Pakistan: Endangered B1ab(iii)+2ab(iii)

Restricted in extent of occurrence, few and fragmented locations, with major threats affecting habitat area and quality. Since the neighbouring Indian population is also threatened by war, the status in South Asia is retained.

VULNERABLE in South Asia

Wildlife Legislation

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Pakistan: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research, limiting factors

Management: Monitoring, habitat management

Captive stocks: None

Comments

Numerous in coniferous forest in Jammu & Kashmir, India (S. Chakraborty, pers. comm.)

Sources

Chakraborty, 1983; Ellerman, 1961; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: S. Chakraborty

Recent Field Studies

None

Locations from where *Hylopetes baberi* (Blyth, 1847) is known in India and Pakistan



Distribution of *Hylopetes barberi* (Blyth, 1847) in South Asia (India and Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Jammu and Kashmir				
South Kashmir Shikargarh	-	-	Mon. St. F.	Chakraborty (1983); not uncommon (S. Chakraborty, pers. comm.)
Udhampur Daksum	-	-	Mon. St. F.	Chakraborty (1983); not uncommon (S. Chakraborty, pers. comm.)
PAKISTAN				
North West Frontier Province				
Hazara Hazara	34°30'	73°15'	Mon. St. F.	Ellerman (1961)
Kaghan Valley	34°47'	73°32'	Mon. St. F.	Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Marmota caudata* (Geoffroy, 1744)**

NEAR THREATENED in South Asia

Synonyms: *Arctomys caudatus* Geoffroy, 1844; *Arctomys aurea* Blanford, 1875; *Arctomys aureus* Blanford, 1875; *Arctomys littledalei* Thomas, 1909; *Marmota stirlingi* Thomas, 1916

Order: Rodentia

Family: Sciuridae

Common names: English: Long-tailed Marmot

Taxonomic remarks: Ellerman (1961) maintained two subspecies, *Marmota caudata caudata* (Geoffroy, 1844) and *Marmota caudata aurea* (Blanford, 1875) based on characteristics of saddle patch from the region. Corbet and Hill (1992) does not include this taxon in their work. We follow Ellerman and Morrison-Scott (1951), Ellerman (1961), Hoffmann *et al.* (1993) and Roberts (1997) to retain both the subspecies

Habit: Crepuscular, diurnal, semi fossorial, gregarious

Habitat: Subtropical alpine scrub and meadows

Niche: Alpine scrub and meadows, rock areas with dwarf juniper

Elevation: 3,200-4,850m

Distribution

Global: Afghanistan, China, India, Kurdistan, Pakistan, Tajikistan

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India < 20,000 ; Pakistan < 20,000]

Area of Occupancy: > 2,001 sq km [India < 2,000 ; Pakistan < 2,000]

Locations/subpopulations: 14/2, Fragmented

Habitat status: Declining in habitat and quality.

Threats

Threats not known for this species, however the habitat in which it is known to occur is under threat due to overgrazing, conversion of lands for agriculture, civil unrest and landslides

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, museum records; estimated; suspected

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) NEAR THREATENED in South Asia

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

National Status (IUCN Ver. 3.0)

India: Vulnerable ↓ Near Threatened

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Pakistan: Vulnerable ↓ Near Threatened

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Pakistan: None

CITES: Appendix III

Presence in Protected Areas

Disputed Kashmir Khunjerab NP

Recommendations

Research: Survey, limiting factors

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Blumstein & Foggin, 1997; Ellerman, 1961; Roberts, 1997; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

Blumstein, D.T., Dhee Shar, Khunjerab National Park, Pakistan, 1990-2000, Behavioural ecology of Golden marmot

Distribution of *Marmota caudata* (Geoffroy, 1844) in South Asia (India and Pakistan) from literature and recent field studies

Distribution in Lat. Long. Habitat Notes / Sources

South Asia

INDIA

Jammu and Kashmir

Chilas 35°26' 74°05' Mon. Roberts (1997)
 Chilas St. F.

Gilgit 36°47' 74°58' Mon. Blumstein & Foggin (1997); Roberts (1997)
 Dhee Shar St. F.
 Tibel valley - Mon. Ellerman (1961)
 St. F.
 Deosai Plains 35°20' 75°12' Mon. Ellerman (1961), near Baltistan
 St. F.

Gilgit Wazarat 34°34' 74°41' Mon. Roberts (1997)
 Astor St. F.
 Burzil 34°52' 75°07' Mon. Ellerman (1961)
 St. F.

PAKISTAN

North West Frontier Province

Chitral 33°59' 70°11' Mon. Roberts (1997)
 Agam Pass St. F.
 36°12' 71°41' Mon. Roberts (1997)
 Arkan Nullah St. F.
 36°15' 72°15' Mon. Roberts (1997)
 Chitral St. F.
 Dorah Pass 34°04' 72°47' Mon. Roberts (1997)
 St. F.
 Lufko Nullah 35°54' 71°30' Mon. Roberts (1997)
 St. F.

Swat Kohistan 35°35' 72°30' Mon. Roberts (1997), in Kohistan
 Swat St. F.

Locations from where *Marmota caudata* (Geoffroy, 1844) is known in India and Pakistan



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Marmota himalayana* (Hodgson, 1841)**

Synonyms: *Arctomys himalayanus* Hodgson, 1841; *Marmota bobak himalayana* (Hodgson, 1841); *Arctomys hemachalanus* Hodgson, 1843; *Arctomys hemachalana* (Hodgson, 1843); *Arctomys tibetanus* Gray, 1847

Order: Rodentia

Family: Sciuridae

Common names: English: Himalayan Marmot; Karakoram Marmot; Monpa: *Shikpa*

Taxonomic remarks: Ellerman and Morrison-Scott (1951), Ellerman (1961) and Corbet (1978) treated it as a subspecies of *Marmota bobak* (Muller, 1776). Hoffmann *et al.* (1993) indicates that Gromov *et al.* (1965) elevated the taxon '*himalayana*' to specific level. Pakistan population was treated as *Marmota himalayana himalayana* (Hodgson, 1841) by Roberts (1997)

Habit: Diurnal, arboreal

Habitat: Temperate and subtropical evergreen and dry deciduous montane forests

Niche: Affects rhubarb growing areas where soil surface can be easily dug up for burrows on gentle slopes in valleys in high altitude region

Elevation: 3,500-5,200m

Distribution

Global: China, India, Nepal, Pakistan

South Asia: India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000; Pakistan unknown]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal > 2,000; Pakistan unknown]

Locations/subpopulations: 15/6, Fragmented

Habitat status: Quantitative and qualitative decline at the rate of 20 to 50% in past 40 years and a similar trend predicted in next 10 years due to human interference and livestock grazing

Threats

Hunting for food and medicinal value, entanglement in nets, natural disasters such as landslides, natural and domestic predators, civil unrest, livestock grazing

Trade: For local consumption and medicinal properties

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Indirect information, informal sightings, hearsay, literature, museum records; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver 3.0)

India: Least Concern

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

LEAST CONCERN in South Asia

Nepal: Least Concern

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

Pakistan: Data Deficient

Rationale: Location not known.

Wildlife Legislation:

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

CITES: Appendix III

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research, limiting factors

Management: Monitoring, habitat management

Captive stocks: None

Comments

Should be assessed as Near Threatened as there are many direct and indirect threats and habitat where the taxon occurs is rapidly degrading (C. Srinivasulu, *pers. comm.*)

Sources

Ellerman, 1961; Mishra *et al.*, 2004; Roberts, 1997; Shrestha, 1997; Srinivasulu *et al.*, 2004 BIS on species by: A. Datta

Compilers

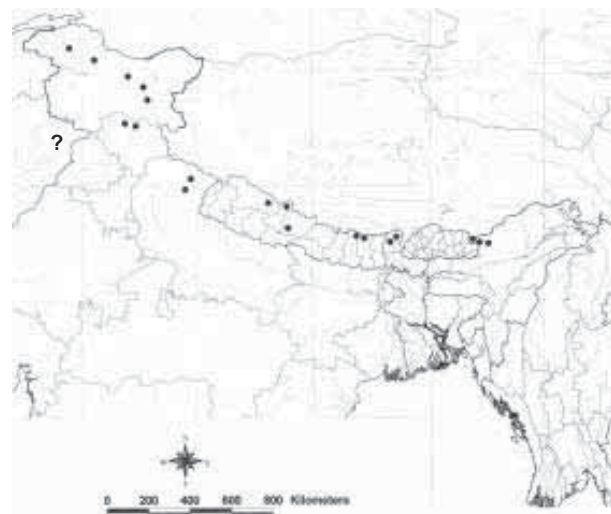
Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: S.S. Saha

Recent Field Studies

None

Locations from where *Marmota himalayana* (Hodgson, 1841) is known in India and Nepal



Distribution of *Marmota himalayana* (Hodgson, 1841) in South Asia (India, Nepal and Pakistan) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA					Uttaranchal				
Arunachal Pradesh					Chamoli				
Tawang	27°65'	91°86'	Mon. St. F.	A. Datta, BIS, near PTSO Lake Elevation: 3,900m; temperate grassland, alpine meadow, Rhododendron scrub. Threats include occasional hunting for pelts and meat	Niti	30°58'	79°53'	Mon. St. F.	Ellerman (1961)
Mamgalyalem					?Garhwal				
					Hoti	-	-	Mon. St. F.	Ellerman (1961), near Tibet border
Zithang	27°73'	92°28'	Mon. St. F.	A. Datta, BIS, Valley bottom near Magochu River. Elevation: 4,100m, temperate grassland. Threats include occasional hunting for pelts and meat	NEPAL				
					Eastern Nepal				
West Kameng					Makalu Barun NP	27°55'	87°08'	Mon. St. F.	Shrestha (1997)
Mago Chu valley	27°36'	92°02'	Mon. St. F.	Mishra <i>et al.</i> (2004)	Sagarmatha NP	27°20'	86°40'	Mon. St. F.	Shrestha (1997)
Himachal Pradesh					Western Nepal				
Lahul & Spiti					Annapurna CA	28°35'	83°57'	Mon. St. F.	Shrestha (1997)
Lahul/Lingti	32°54'	77°34'	Temp. F. Ellerman (1961)		Mid Western Nepal				
Sissu	32°29'	77°07'	Temp. F. Ellerman (1961)		? Location	-	-	Mon. St. F.	Shrestha (1997); in Mustang district
Jammu and Kashmir					Shey Phuksundo NP	29°04'	82°57'	Mon. St. F.	Shrestha (1997)
Ladakh					PAKISTAN				
Dakpo	-	-	Temp. F. Ellerman (1961)		? Location	-	-	-	Roberts' (1997) record of its occurrence in Pakistan basing on historic specimen collected from Narh Nallah, Skardu is from Ladakh district, Jammu & Kashmir, India. The Workshop is not aware of any other locality of its occurrence in Pakistan
Digra	33°33'	78°53'	Temp. F. Ellerman (1961)						
Khardung La	34°24'	77°39'	Temp. F. Ellerman (1961)						
Sasir Pass	35°02'	77°44'	Temp. F. Ellerman (1961)						
Skardu	35°18'	75°37'	Temp. F. Ellerman (1961); near Narh Nallah, alt. 3,600m (Roberts, 1997)						
Tuan	33°20'	76°37'	Temp. F. Ellerman (1961)						
Sikkim									
North Sikkim									
Gigong	-	-	Mon. St. F.	S.S. Saha (pers. comm.). Observed in 1991 on upper plateau region of Lachen Valley					
Yumthang	27°50'	88°42'	Mon. St. F.	S.S. Saha (pers. comm.). Observed in 1991 on upper plateau region of Lachen Valley					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Petaurista caniceps* (Gray, 1842)**

NEAR THREATENED in South Asia

Synonyms: *Petaurista elegans* (Muller, 1840); *Sciuropterus caniceps* Gray, 1842; *Petaurista elegans caniceps* (Gray, 1842); *Sciuropterus senex* Hodgson, 1844; *Sciuropterus gorkhali* Lindsay, 1929; *Petaurista elegans gorkhali* (Lindsay, 1929)

Order: Rodentia

Family: Sciuridae

Common names: English: Grey-headed Flying Squirrel, Lesser Giant Squirrel, Hill Squirrel; Nepalese: *Lokharkee*

Taxonomic remarks: Ellerman (1940, 1961), and, Ellerman and Morrison-Scott (1951) included this taxon under *Petaurista elegans* (Müller, 1840). Corbet and Hill (1992) treated it as a distinct species, which is sympatric with *Petaurista elegans* (Müller, 1840) in western Yunan. However, Hoffmann *et al.* (1993) treated *Petaurista caniceps* (Gray, 1842) and other synonyms listed above under *Petaurista elegans* (Müller, 1840). We follow Corbet and Hill (1992)

Habit: Arboreal, crepuscular/nocturnal

Habitat: Tropical and subtropical montane forest, pine forest

Niche: High altitude dweller

Elevation: 3,000-4,000m [may be found from 1,000m onwards]

Distribution

Global: Bhutan, China, India, Nepal

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan < 20,000; India > 20,000; Nepal < 20,000]

Area of Occupancy: 501-2,001 sq km [Bhutan < 500; India < 2,000; Nepal < 500]

Locations/subpopulations: 11/6, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% due to forest fires and logging

Threats

Habitat loss and degradation due to selective logging, infrastructure development, large wood plantations, human encroachments, forest fires, human disturbance as war and civil unrest

Trade: Unknown

Population

Generation time: Unknown

Total population: > 10,000

Mature individuals: Unknown

Population trend: Quantitative decrease in the population numbers at the rate of < 10% in the last 20 years and a similar trend is predicted for the next 20 years due to loss of habitat because of forest fires and logging

Data source

Field studies, informal sightings, literature; observed; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) VULNERABLE ↓ NEAR THREATENED in South Asia B2ab(ii,iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

National Status

Bhutan: Endangered ↓ Vulnerable B2ab(ii,iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

India: Vulnerable ↓ Near Threatened B2ab(ii,iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Nepal: Endangered ↓ Vulnerable B2ab(ii,iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation:

Bhutan: None

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic studies

Management: Monitoring

Captive stocks: None

Comments

Previously there was hunting for subsistence and trade. Two subspecies occurs in South Asia - *Petaurista caniceps elegans* and *Petaurista caniceps sybilla* (Namdapha 300 m) (S.S. Saha, *pers. comm.*). Some authorities treat this taxon under *Petaurista elegans* (Müller, 1840), but according to recent checklist of Srinivasulu *et al.* (2004), this taxon has been enlisted as *Petaurista caniceps* (Gray)

Sources

Ellerman, 1961; Roberts, 1997; Shreshta, 1997; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: S.S. Saha

Recent Field Studies

None

Distribution of *Petaurista caniceps* (Gray, 1842) in South Asia (Bhutan, India and Nepal) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BHUTAN				
Central Bhutan Batasi	-	-	Mon. St. F.	S.S. Saha (pers. comm.)
Western Bhutan Chasiaka	-	-	Mon. St. F.	S.S. Saha (pers. comm.)
INDIA				
Arunachal Pradesh				
Changlang Namdapha	27°23' to 27°39'	96°15' to 96°58'	Trop. F.	S.S. Sah (pers. comm.). 77 mile camp post
Sikkim				
? Locality	-	-	-	Ellerman (1961)
North Sikkim Yumthang	27°50'	88°42'	Mon. St. F.	S.S. Saha (pers. comm.)
West Bengal				
Darjiling Ghoom	27°01'	88°16'	Mon. St. F.	S.S. Saha (pers. comm.)
Salim Bong Tong Song	-	-	-	S.S. Saha (pers. comm.) S.S. Saha (pers. comm.)
NEPAL				
Central Nepal				
Apoon	-	-	Mon. St. F.	Ellerman (1961), near Gokha (28°01' N & 84°37' E)
Sottidanda Barphak	-	-	Mon. St. F.	Ellerman (1961), near Gokha in Sattar Hills (28°00' N & 84°50' E)
Gorkha	28°01'	84°37'	Mon. St. F.	Shreshta (1997)

Locations from where *Petaurista caniceps* (Gray, 1842) is known in Bhutan, India and Nepal



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Petaurista magnificus* (Hodgson, 1836)**

VULNERABLE in South Asia

Synonyms: *Sciuropterus magnificus* Hodgson, 1836

Order: Rodentia

Family: Sciuridae

Common names: English: Hodgson's Flying Squirrel; Nepalese: *Wudnee Lokharkee*

Taxonomic remarks: Ellerman (1940, 1961) and, Ellerman and Morrison-Scott (1951) considered *Sciuropterus nobilis* Gray, 1842 and *Sciuropterus chrysotrix* Hodgson, 1844 as

Synonyms: of the present species. But see comments under *Petaurista nobilis* (Gray, 1842). One record of this species from southern Tibet adjoining Nepal border by Feng *et al.* (1986) needs taxonomic confirmation. Distribution of subspecies in the range: *Petaurista magnificus magnificus* - Nepal and, *Petaurista magnificus hodgsoni* - Darjeeling and Sikkim

Habit: Arboreal, crepuscular/nocturnal

Habitat: Tropical and subtropical montane forests

Niche: Montane forests

Elevation: 1,500-2,240m

Distribution

Global: Bhutan, China, India, Nepal

South Asia: Bhutan, India, Nepal

Extent of Occurrence: 5,001-20,000 sq km [Bhutan < 5,000; India < 20,000; Nepal not known]

Area of Occupancy: > 2,001 sq km [Bhutan < 500; India > 2,000; Nepal not known]

Locations/subpopulations: 10/2, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of 21 to 50 % in the last 25 years and a similar trend predicted in the next 25 years due to increase in human settlements and logging

Threats

Habitat loss and degradation due to non-timber plantations, small-scale logging, human encroachments, forest fires [Habitat of the type locality is lost (S.S. Saha, *pers. comm.*)]

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in the population at the rate of 30% or more in the last 25 years and a similar trend is predicted in the next 25 years due to loss of habitat and increase of human settlements

Data source

Informal sightings, literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) VULNERABLE in South Asia A2c+3c+4c; B1ab(ii,iii)

Rationale: Continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations. Restricted in extent of occurrence, few and fragmented locations, with major threats affecting habitat area and quality.

National Status (IUCN Ver. 3.0)

Bhutan: Endangered A2c+3c+4c; B1ab(ii,iii)

Rationale: Continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations. Restricted in extent of occurrence, few and fragmented locations, with major threats affecting habitat area and quality.

India: Vulnerable A2c+3c+4c; B1ab(ii,iii)

Rationale: Continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations. Restricted in extent of occurrence, few and fragmented locations, with major threats affecting habitat area and quality.

Nepal: Data Deficient

Taxonomic confusion in the populations thought to be *P. magnificus*.

Wildlife Legislation:

Bhutan: None

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey studies, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

Srinivasulu *et al.* (2004) opined that the record of this species from southern Tibet adjoining Nepal border (vide Feng *et al.*, 1986) needs taxonomic confirmation. If this report turns negative then the taxon would become South Asian or regional endemic (C. Srinivasulu, *pers. comm.*). In Darjeeling, West Bengal, India 1,800sq km (S.S. Saha *pers. comm.*), the actual AoO could not be ascertained in Nepal due to taxonomic confusion.

Sources

Chakraborty, 1975; Ellerman, 1961; Ghose & Saha, 1981; Johnson *et al.*, 1980; Mishra *et al.*, 2004; Shreshta, 1997; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: S.S. Saha, C. Srinivasulu

Recent Field Studies

None

Distribution of *Petaurista magnificus* (Hodgson, 1836) in South Asia (Bhutan, India and Nepal) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BHUTAN									
Eastern Bhutan	-	-	-	Chakraborty (1975); alt. 2,500m	Sathen Hills	-	-	-	Ghose and Saha (1981); in Gokha (28°01' N & 84°37' E); this could be misnomer of Sathar Hills (C. Srinivasulu, pers. comm.)
Gomchu	-	-	-	Chakraborty (1975); alt. 1,525m					
Mithangar									
Western Bhutan					Eastern Nepal				
Paro	27°26'	89°25'	Mon. St. F.	Chakraborty (1975); alt. 2,440m	Mangalbare	27°16'	87°30'	Mon. St. F.	Johnson <i>et al.</i> (1980); alt. 2,890m

INDIA

Arunachal Pradesh

Changlang	27°23'	96°15'	Trop. F.	S.S. Saha (pers. comm.); 77 mile camp
Namdapha	to 27°39'	to 96°58'		post

Sikkim

Sedonchen	-	-	-	Ellerman (1961)
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North Sikkim

Chungthang	27°38'	88°36'	Mon. St. F.	J. Thapa, BIS; Threats include poaching and declining habitat
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South Sikkim

Damthang	27°14'	88°23'	Mon. St. F.	J. Thapa, BIS; Threats include decreasing forest cover
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West Bengal

Darjiling	26°45'	88°15'	Mon. St. F.	Ellerman (1961)
Darjiling				
Ghoom	27°01'	88°16'	Mon. St. F.	Ghose and Saha (1981); S.S. Saha (pers. comm.)

NEPAL

Naivakot	-	-	-	Ellerman (1961)
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Central Nepal

Gorkha	28°01'	84°37'	Mon. St. F.	Ellerman (1961); Mitchell (1979)
Satthar Hills	28°00'	84°50'	Mon. St. F.	Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon. G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Petaurista magnificus* (Hodgson, 1836) is known in Bhutan, India and Nepal



***Petaurista nobilis* Gray, 1842**

ENDANGERED

Synonyms: *Sciuropterus chrysothrix* Hodgson, 1844;

Sciuropterus nobilis Gray, 1842

Order: Rodentia

Family: Sciuridae

Common names: English: Noble Giant Flying Squirrel, Gray's Giant Flying Squirrel; Nepalese: *Wudnee Lokharee*

Taxonomic remarks: Ellerman (1940, 1961) and, Ellerman and Morrison-Scott (1951) included this taxon under *Petaurista magnificus* (Hodgson, 1836). Ghose and Saha (1981) basing on its distinctness considered *nobilis* as a separate species and kept *Sciuropterus chrysothrix* Hodgson, 1844 as synonym under it. Corbet and Hill (1992) and Hoffmann *et al.* (1993) also maintain *nobilis* as a distinct species

Habit: Arboreal, crepuscular/nocturnal

Habitat: Tropical and subtropical montane, montane pine and rhododendron forests

Niche: High altitude forests

Elevation: 1,500-3,000m

Distribution

Global: Endemic to South Asia

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan > 20,000; India > 20,000; Nepal > 20,000]

Area of Occupancy: < 2,000 sq km [Bhutan < 500; India < 2,000; Nepal < 500]

Locations/subpopulations: 6/5, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of 21 to 50 % in the last 25 years (based on three generations, Jonathan Bielby, *pers. comm.*) and a similar trend predicted in the next 25 years due to logging, mining, construction of dams

Threats

Habitat loss and degradation due to non-farm activities, logging, mining, human settlements, construction of dams, hunting for local consumption.

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in the population at the rate of 50% or more in the last 20 years and a similar trend is predicted in the next 20 years due to loss of habitat

Data source

Field study, informal sightings, literature; observed; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED A2c+3c+4c**

Rationale: Continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations.

National Status (IUCN Ver. 3.0)

Bhutan: Endangered A2c+3c+4c; 2ab(ii,iii)

Rationale: Continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations. Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and

quality. Since the situation is the same in the neighbouring country, the category is retained.

India: Endangered A2c+3c+4c

Rationale: Continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations. Since the situation is the same in the neighbouring country, the category is retained.

Nepal: Endangered A2c+3c+4c; 2ab(ii,iii)

Rationale: Continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations.

Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. Since the situation is the same in the neighbouring country, the category is retained.

Wildlife Legislation:

Bhutan: None

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, life history, limiting factor studies

Management: Habitat management, public awareness

Captive stocks: None

Comments

Population decline inferred from severe rate of habitat loss and restricted habitat of the species. The species occupies only a narrow patch of forest not > 1 1/2 to 2 km between 1500-3000m.

Sources

Ellerman, 1961; Ghose and Saha, 1981; Saha, 1975; Shreshta, 1997; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

None

Distribution of *Petaurista nobilis* Gray, 1842 (Endemic to Bhutan, India and Nepal) from literature and field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BHUTAN				
Western Bhutan				
Gomchu	-	-	Mon. St. F.	Saha (1977); Ghose and Saha (1981); alt. c.2,286m
Mithangarh	-	-	Mon. St. F.	Saha (1977); Ghose and Saha (1981), in Dia valley; alt. 1,676m
Paro	27°26'	89°25'	Mon. St. F.	S.S. Saha (pers. comm.); Saha (1977); Ghose and Saha (1981); alt. 2,240m. Extensive habitat destruction, poaching and trade
INDIA				
Sikkim				
Sedonchen	-	-	-	Ellerman (1961)
Tumling	-	-	-	Saha (1977); near Gangtok (27°20' N & 88°37' E)
West Bengal				
Darjiling	26°45'	88°15'	Mon. St. F.	Ellerman (1961)
Darjiling	27°01'	88°16'	Mon. St. F.	Saha (1977); extensive habitat destruction, poaching and trade
Ghoom	-	-	Mon. St. F.	Saha (1977); extensive habitat destruction, poaching and trade. Near Ghoom (27°01' N & 88°16' E)
Manibhanj	-	-	Mon. St. F.	Saha (1977); extensive habitat destruction, poaching and trade. Near Ghoom (27°01' N & 88°16' E)
Palmajua	-	-	Mon. St. F.	Ghose and Saha (1981)
Selimbong	-	-	Mon. St. F.	
NEPAL				
				Ghose & Saha (1981) opine that this species occurs in hills of Nepal but provide no exact location

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Petaurista nobilis* Gray, 1842 is known in Bhutan, India and Nepal



***Petaurista petaurista* (Pallas, 1766)**

NEAR THREATENED in South Asia

Synonyms: *Sciurus petaurista* Pallas, 1766; *Pteromys albiventer* Gray, 1834; *Pteromys inornatus* Geoffroy, 1844; *Pteromys birrelli* Wroughton, 1911; *Pteromys fulvinus* Wroughton, 1911

Order: Rodentia

Family: Sciuridae

Common names: English: Red Giant Flying Squirrel, Common Giant Flying Squirrel; Nepalese: *Wudnee Lokharee*

Taxonomic remarks: Ellerman (1940, 1961) and, Ellerman and Morrison-Scott (1951) included *Petaurista philippensis* (Elliot, 1839) as one of the many subspecies of *Petaurista petaurista* (Pallas, 1766) as *Petaurista petaurista philippensis* (Elliot, 1839). Ellerman (1961) dealt in detail on nine subspecies of this taxon. Corbet and Hill (1992) revised this taxon and separated many forms either as synonyms or subspecies of *Petaurista philippensis* (Elliot, 1839)

Habit: Arboreal, nocturnal

Habitat: Temperate forest, boreal scrub forest, rocky areas as inland cliffs, mountain peaks [In Pakistan: moist temperate forests in the Himalayas]

Niche: Moist evergreen forest

Elevation: 500-3,100m

Distribution

Global: Afghanistan, Bangladesh, China, India, Indonesia, Malaysia, Myanmar, Sumatra, Thailand

South Asia: Bangladesh, India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [Bangladesh < 20,000; India > 20,000; Nepal < 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,001sq km [Bangladesh < 2,000; India > 2,000; Nepal < 2,000; Pakistan > 2,000]

Locations/subpopulations: 21/10, Fragmented [Number of subpopulations and locations > 10]

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% in the last 20 years and a similar trend predicted in the next 20 years due to deforestation, construction of dams, loss of fruiting trees and alteration of the habitat

Threats

Habitat loss and degradation due to shifting agriculture, large wood plantations, mining, small-scale logging, selective logging, clear-cutting, infrastructure development, increase of human settlements, construction of dams, erecting power lines, forest fires, presence of predators, hunting for pet trade and fur trade

Trade: For keeping as pets and for the fur trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in the population at the rate of 10% or more in the last 10 years and < 10% is predicted in the next 20 years due to deforestation, habitat alteration and loss of fruiting trees

Data source

Informal sightings, literature; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) NEAR THREATENED in South Asia

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

National Status (IUCN Ver. 3.0)

Bangladesh: Vulnerable ↓ Near Threatened B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

India: Near Threatened

Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Nepal: Vulnerable ↓ Near Threatened

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Pakistan: Near Threatened

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Wildlife Legislation:

Bangladesh: None

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

Pakistan: None

CITES: Not listed

Presence in Protected Areas

India: *Arunachal Pradesh:* Namdapha NP

Recommendations

Research: Survey, limiting factor studies

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Das *et al.*, 1995; Ellerman, 1961; Mishra *et al.*, 2004; Omaston, 1950; Roberts, 1997; Sarker and Sarker, 1988; Shreshta, 1997; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: S.S. Saha

Recent Field Studies

None

Locations from where *Petaurista petaurista* (Pallas, 1766) is known in Bangladesh, India, Nepal and Pakistan



Distribution of *Petaurista petaurista* (Pallas, 1766) in South Asia (Bangladesh, India, Nepal and Pakistan) from literature and field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
BANGLADESH									
Chittagong	22°00'	92°00'	Trop. F.	Sarker and Sarker (1988)	Gilgit Wazarat	34°34'	74°41'	Mon.	Roberts (1997)
Chittagong					Astor			St. F.	
Sylhet	24°54'	91°56'	Trop. F.	Sarker and Sarker (1988)	Burzil	34°52'	75°07'	Mon.	Ellerman (1961)
Sylhet								St. F.	
INDIA					Meghalaya				
Arunachal Pradesh					East Garo Hills	25°30'	90°30'	Trop. F.	Das <i>et al.</i> (1995)
Changlang	27°23'	96°15'	Trop. F.	Mishra <i>et al.</i> (2004)	Rongrengiri				
Namdapha NP	to 27°39'	to 96°58'			Nagaland	26°00'	95°00'	Trop. F.	Ellerman (1961)
					Mooching				
					Naga Hills				
Himachal Pradesh					Uttaranchal				
Kullu	32°19'	77°12'	Temp. F.	Ellerman (1961)	Nainital	29°12'	79°25'	Temp. F.	Ellerman (1961); Omaston (1950) at Chakrata
Koti					Nainital				
?Mandi					PAKISTAN				
Rahla	32°21'	77°12'	Temp. F.	Ellerman (1961)	North West Frontier Province				
Jammu and Kashmir					Chitral	36°15'	72°15'	Mon.	Roberts (1997)
Khargeskote	-	-	-	Ellerman (1961)	Chitral			St. F.	
Nasai	-	-	-	Ellerman (1961)	Hazara	34°30'	73°15'	Mon.	Ellerman (1961); Roberts (1997)
Muzaffrabad	-	-	-	Roberts (1997)	Hazara			St. F.	
Neelum Valley	-	-	-		Khagan Valley	34°25'	73°17'	Mon.	Roberts (1997)
North Kashmir	34°10'	74°45'	Mon.	Ellerman (1961)	Dir	35°17'	71°49'	Mon.	Roberts (1997)
Kashmir			St. F.		Dir			St. F.	
South Kashmir	-	-	Mon.	Ellerman (1961)	Punjab				
Sardalla	-	-	St. F.	Ellerman (1961)	Rawalpindi	-	-	Mon.	Roberts (1997); in Murree Hills (33°55' N & 73°25' E)
Pahalgam	34°02'	75°20'	Mon.	Ellerman (1961)	Bara Gali	-	-	Mon.	Roberts (1997); in Murree Hills (33°55' N & 73°25' E)
			St. F.		Donga Gali	-	-	St. F.	
Gilgit	-	-	Mon.	Ellerman (1961)					
Tibel valley	-	-	St. F.	Ellerman (1961)					
Deosai Plains	35°20'	75°12'	Mon.	Ellerman (1961); near Baitistan					
			St. F.						

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Petaurista philippensis (Elliot, 1839)

NEAR THREATENED in South Asia

Synonyms: *Pteromys philippensis* Elliot, 1839; *Petaurista petaurista philippensis* (Elliot, 1839); *Pteromys oral* Tickell, 1842?; *Pteromys griseiventer* Gray, 1843; *Petaurista cindrella* Wroughton, 1911; *Petaurista lanka* Wroughton, 1911

Order: Rodentia

Family: Sciuridae

Common names: English: Large Brown Flying Squirrel, South Indian Giant Flying Squirrel; Rajasthani: *Kat-bola*, *Mor-chitri*, *Udan Gilhari*, *Velni-minki*; Sinhalese: *Maha Hamvawa*

Taxonomic remarks: Ellerman (1961) and Ellerman and Morrison-Scott (1951) included this taxon under *Petaurista petaurista* (Pallas, 1766) as its subspecies. Phillips (1981) described the Sri Lankan taxon under *Petaurista petaurista lanka* Wroughton, 1911 following Ellerman and Morrison-Scott (1951). Corbet and Hill (1992) reviewed and revised *Petaurista petaurista* (Pallas, 1766) forms and elevated 'philippensis' forms to specific level under *Petaurista philippensis* (Elliot, 1839)

Habit: Arboreal, crepuscular/nocturnal

Habitat: Tropical and subtropical dry deciduous forests, evergreen forests

Niche: Tree canopies and holes

Elevation: > 500m

Distribution

Global: China, India, Indonesia, Myanmar, Sri Lanka, Taiwan

South Asia: India, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India > 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,001sq km [India > 2,000; Sri Lanka 11-500]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of < 20% in the last 20 years and a similar trend predicted in the next 10 years due to habitat loss

Threats

Habitat loss and degradation due to non-farm activities, tree felling, shifting cultivation, increase in human settlements, forest fires, accidental mortality due to collision with vehicles, hunted for local consumption and medicinal purposes

Trade: For local consumption and hunted for medicinal properties

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Quantitative decrease in the population at the rate of 20% or more in the last 25 years and < 10% is predicted in the next 20 years due to habitat loss

Data source

Indirect information, informal sightings; observed; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) **NEAR THREATENED in South Asia**

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

National Status (IUCN Ver. 3.0)

India: Near Threatened

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Sri Lanka: Endangered B2ab(ii,iii,v)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area, quality and in number of mature individuals.

Wildlife Legislation:

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India:

Andhra Pradesh: Eturnagaram WS

Bihar: Valmiki TR; Kaimur WS

Karnataka: Bandipur NP, Nagarhole NP

Kerala: Chinnar WS, Parambikulam WS, Peechi-Vazhani WS, Periyar TR, Thathekad BS

Madhya Pradesh: Bori WS, Kanha NP

Rajasthan: Phulwari WS, Sitamata WS

Tamil Nadu: Kalakkad-Mundunthurai TR

Sri Lanka:

Central Province: Horton Plains NP, Knuckles FR;

Sabaragamuwa: Sinharaja FR

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

This taxon is hunted for sustenance/subsistence

Sources

Abhayaratne, 1993; Balasubramaniam *et al.*, 1990; Bhattacharyya & Ghosh, 2004; Chakraborty *et al.*, 1998; Chundawat *et al.*, 2002; Ghose & Bhattacharyya, 1995a; Ellerman, 1961; Pradhan & Kurup, 2001; S.K. Sharma, W.L.D.P.T.S. de A. Goonatilake; Phillips, 1932; Srinivasulu *et al.*, 2004; Tehsin, 1980; Norris, 1965; BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu,

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

India:

Easa *et al.*, Kerala, 1993-1998, Survey of small mammals Ashraf N.V.K. *et al.*, Relative abundance of two sympatric flying squirrels in Western Ghats, 1990-92

Ramachandran, K.K., Shrendhury, 1995

Xavier, F., Kerala, 1996

Sharma, S.K., Phulwari Wildlife Sanctuary, Kotra, Udaipur

District, 2002 onwards, Biodiversity of Phulwari
Srinivasulu, C. and Bhargavi Srinivasulu, Throughout Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh
Srinivasulu, C., Protected Areas and RF of Godavari Basin in Telengana, 1996-2002, Biodiversity inventorying studies
Sri Lanka
Abayaratna, Nivitigala, Ratnapura District, 1993
Balasubramaniam et al., Wartelgoda, Runakanda, Sinharaja FR, Western and Sabaragamuwa, 1990

Locations from where *Petaurista philippensis* (Elliot, 1839) is known in India and Sri Lanka



Distribution of *Petaurista philippensis* (Elliot, 1839) in South Asia (India and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andhra Pradesh									
Karimnagar	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; c. 18°43' N & 79°59' E), in Mahadevpur RF	Karnataka	-	-	Trop. F.	Pradhan and Kurup (2001)
Azamnagar	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; c. 18°43' N & 79°59' E), in Mahadevpur RF	Chintakani	12°25'	75°45'	Trop. F.	Pradhan and Kurup (2001)
Chintakani	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; c. 18°43' N & 79°59' E), in Mahadevpur RF	Coorg	-	-	Trop. F.	Ellerman (1961)
Visakhapatnam	-	-	Trop. F.	S.S. Saha (pers. observ.); near Araku (18°20' N & 82°52' E)	Haleri	12°01'	76°09'	Trop. F.	Pradhan and Kurup (2001), also at Sankadkatte
Jyothimamidi	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E), in Eturnagaram WS	Kutta	-	-	Trop. F.	Ellerman (1961)
Warangal	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E), in Eturnagaram WS	Sirmangala	12°01'	76°00'	Trop. F.	Ellerman (1961)
Sarvai	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E), in Eturnagaram WS	Virajpet	12°12'	75°48'	Trop. F.	Ellerman (1961)
Tadwai	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E), in Eturnagaram WS					
Venkatapuram	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E), in Eturnagaram WS					
Bihar									
Paschim Champaran	-	-	Trop. F.	Chakraborty <i>et al.</i> (1998)					
Valmiki TR	-	-	Trop. F.	Bhattacharyya & Ghosh (2004); near Rohtas					
Chhattisgarh									
Bastar	19°05'	80°46'	Trop. F.	Saha (pers. observ.) in 1992					
Kutru	-	-	Trop. F.	Bhattacharyya & Ghosh (2004); near Rohtas					
Gujarat									
Dangs	20°45'	73°45'	Trop. F.	Ellerman (1961)					
Pemprai Dangs	20°46'	73°49'	Trop. F.	Ellerman (1961)					
Waghai Dangs	-	-	Trop. F.	Ellerman (1961)					
Jharkhand									
Paschim Singhbhum	22°34'	85°49'	Trop. F.	Ellerman (1961)					
Chaibassa	-	-	Trop. F.	Ellerman (1961)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Petaurista philippensis* (Elliot, 1839) in South Asia (India and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
Hoshangabad									
Bori WS	-	-	Trop. F.	A. Datta (pers. comm.)		7°34'	80°42'	Trop. F.	Phillips (1932); Norris (1965); W.L.D.P.T.S. de A. Goonatilake, BIS
Maharashtra					SRI LANKA				
Pili	-	-	Trop. F.	Ellerman (1961), in Berar region	Central Province				
Sipna	-	-	Trop. F.	Ellerman (1961), in Berar region	Matale	7°24'	80°48'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Rajasthan						7°31'	80°38'	Trop. F.	Phillips (1932); Norris (1965); W.L.D.P.T.S. de A. Goonatilake, BIS
Chittorgarh					Nuwara Eliya				
Sitamata WS	24°16'	74°31'	Trop. F.	Tehsin (1980); S.K. Sharma, BIS	Hakgala	6°55'	80°50'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; Goonatilake (1994), in tropical montane rainforest. Threats include road accidents
Banswara									
Banswara	-	-	Trop. F.	S.K. Sharma, BIS	Horton Plains NP	6°49'	80°48'	Trop. F.	Phillips (1932); Norris (1965); W.L.D.P.T.S. de A. Goonatilake, BIS
Dungarpur									
Dungarpur	-	-	Trop. F.	S.K. Sharma, BIS					
Udaipur					Sabaragamuwa				
Gogunda	24°45'	73°32'	Trop. F.	Tehsin (1980); S.K. Sharma, BIS	Rathapura	6°36'	80°27'	Trop. F.	Abhayaratne (1993)
Jhadol	-	-	Trop. F.	Tehsin (1980); S.K. Sharma, BIS	Nivitigala	6°24'	80°30'	Trop. F.	Balasubramaniam <i>et al.</i> (1990); in tropical rainforest
Phulwari WS	-	-	Trop. F.	Chundawat <i>et al.</i> (2002); S.K. Sharma, BIS	Sinharaja FR				
Tamil Nadu									
Coimbatore					Southern Province				
Tiger Shola	10°18'	77°31'	Trop. F.	Ellerman (1961), in Palni hills	Galle	6°33'	80°25'	Trop. F.	Balasubramaniam <i>et al.</i> (1990); in tropical rainforest
Dindigul					Warateligoda				
? locality	10°14'	77°29'	Trop. F.	Ellerman (1961), near Kodaikanal	Proposed FR				
Madurai					Western Province				
Vanathivarai	-	-	Trop. F.	S.S. Saha (pers. observ.) in 1992	Kalutara	-	-	Trop. F.	Balasubramaniam <i>et al.</i> (1990); in tropical rainforest
Rukeri	-	-	Trop. F.	Ellerman (1961); in Kil Kolagiri (11°26' N & 76°53' E)	Runakanda				
Salem and Dharmapuri					Proposed FR				
Shevaroy Hills	11°50'	78°16'	Trop. F.	Ellerman (1961)					
Tirunelveli									
Kakkachi	-	-	Trop. F.	S.S. Saha (pers. observ.) in 1992; in Kalakkad-Mundanthurai WS (8°30' N & 77°34' E)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Petinomys fuscocapillus* (Jerdon, 1847)**

NEAR THREATENED

Synonyms: *Sciuropterus fuscocapillus* Jerdon, 1847;
Sciuropterus layardi Kelaart, 1850; *Petinomys fuscocapillus*
(Kelaart, 1850)

Order: Rodentia

Family: Sciuridae

Common names: English: Travancore Flying Squirrel

Taxonomic remarks: Ellerman (1940, 1961) included two subspecies, namely *Petinomys fuscocapillus fuscocapillus* (Jerdon, 1847) and *Petinomys fuscocapillus layardi* (Kelaart, 1850). Phillips (1981) gave a detailed account of *Petinomys fuscocapillus layardi* (Kelaart, 1850). Corbet and Hill (1992) synonymised the latter taxon with the nominate race

Habit: Nocturnal, arboreal

Habitat: Tropical evergreen, rain and deciduous forests

Niche: In tree hollows, montane patches

Elevation: 500-2,000m

Distribution

Global: Endemic to South Asia

South Asia: India, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India > 20,000; Sri Lanka < 20,000]

Area of Occupancy: > 2,001 sq km [India 1,500; Sri Lanka 900]

Locations/subpopulations: 20/3, Fragmented

Habitat status: Quantitative and qualitative decrease due to habitat loss due to clear felling, logging and other anthropogenic activities

Threats

Habitat loss due to expansion of agriculture, small wood plantations, small-scale logging, infrastructure development, human settlements; harvesting for local consumption and natural predators

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, indirect information, literature, museum records; observed; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1) NEAR THREATENED

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

National Status (IUCN Ver. 3.1)

India: Vulnerable B2ab(ii,iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Sri Lanka: Vulnerable B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation:

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Sri Lanka: None

CITES: Not listed

Presence in Protected Areas

India

Kerala: Chimmony WS, Peechi-Vazhani WS, Periyar NP, Thattekadu WS

Tamil Nadu: Kalakad-Mundanthurai TR

Sri Lanka

Central Province: Adam's Peak WS, Kanneliya FR, Knuckles FR; Sabaragamuwa Province: Sabaragamuwa FR, Sinharaja FR

Recommendations

Research: Survey

Management: Habitat management, monitoring, public awareness

Captive stocks: None

Comments

May be a candidate for future translocation, to recolonize fragmented evergreen forest patches

Sources

Asraf *et al.*, 1993; Ellerman 1961; Karunaratne, 1974; Phillips 1932, 1980; Rajamani, 2001; Srinivasulu *et al.*, 2004; Umaphathi & Kumar, 2000; Xavier *et al.*, 1998 BIS on species by: W.L.D.P.T.S. de A. Goonatilake

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

India

Easa, P. *et al.*, Kerala, 1993-1998, Survey of small mammals
Ashraf, N.V.K. *et al.*, Western Ghats, 1993, Status of Flying Squirrels in Western Ghats

Kurup, G.U., Western Ghats, 1989, Mammals of Kerala

Xavier, P., Vazatha East, Kerala, 1996

Ramachandran, 1995

Zacharias and Christopher, 1996

Sri Lanka

Zoysa and Raheem, Sinharaja FR, Ratnapura District,

Sabargamuwa, 1987

Balasubramaniam *et al.*, Waratelgoda, Runakanda, Sinharaja,

Western and Sabargamuwa, 1990

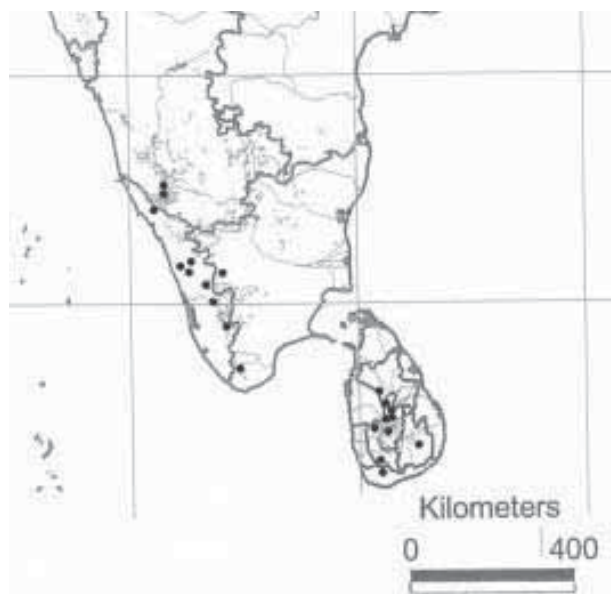
Srinivasulu, C. and Bhargavi Srinivasulu, Throughout Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh

Srinivasulu, C., Protected Areas and RF of Godavari Basin in Telengana, 1996-2002, Biodiversity inventorying studies Sri Lanka

Abayaratna, Nivitigala, Ratnapura District, 1993

Balasubramaniam et al., Wartelgoda, Runakanda, Sinharaja FR, Western and Sabaragamuwa, 1990

Locations from where *Petinomys fuscocaillus* (Jerdon, 1847) is known in India and Sri Lanka



Distribution of *Petinomys fuscocapillus* (Jerdon, 1847) (Endemic to India and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Kerala									
Idukki									
Periyar TR	9°32'	77°12'	Trop. F.	P.O. Nameer (pers. comm.) in 2000; Mohanan Pillai (pers. comm.) in 2001; at Mullakudy; in evergreen and moist deciduous forest	Kandy	7°17'	80°38'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Thattakkad BS	-	-	Trop. F.	P.O. Nameer (pers. comm.) in 1999; in evergreen and moist deciduous forest. Threats include forest fire	Nuwara Eliya	6°53'	80°36'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Thrissur					North Central Province				
Chimmoni WS	-	-	Trop. F.	P.O. Nameer (pers. comm.); in evergreen and moist deciduous forest. Threats include forest fires	Anuradhapura	8°00'	80°16'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS
Peechi-Vazhani WS	-	-	Trop. F.	P.O. Nameer (pers. comm.); P. Padmanabhan (pers. comm.); in evergreen and moist deciduous forest. Threats include forest fires	Sabaragamuwa				
Palakkad and Thrissur					Kegalle				
Nelliampatty Hills	-	-	Trop. F.	P.O. Nameer (pers. comm.); in evergreen and moist deciduous forest. Threats include forest fires, cardamom and coffee plantations	Kitulgala	7°05'	80°29'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Tamil Nadu					Ratnapura				
Anamalai WS	10°35'	76°56'	Trop. F.	Ashraf <i>et al.</i> (1993); Rajamani (2001); Umaphathy and Kumar (2000); in evergreen and moist deciduous forest	Adams Peak	6°48'	80°29'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Kakkachi	-	-	Trop. F.	T.P. Bhattacharyya (pers. comm.); in evergreen and moist deciduous forest. In Kalakkad-Mundhanthurai TR (8°30' N & 77°34' E)	Southern Province				
SRI LANKA					Kennilaya FR	6°17'	80°20'	Trop. F.	Karunaratne (1974); W.L.D.P.T.S. de A. Goonatilake, BIS
Central Province					Uva Province				
Matale					Monaragala				
Gammaduwa	7°34'	80°42'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Wellawaya	6°44'	81°06'	Trop. F.	Ellerman (1961); W.L.D.P.T.S. de A. Goonatilake, BIS
Matale	7°31'	80°38'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Southern Province				
Kandy					Kennilaya FR	6°17'	80°20'	Trop. F.	Karunaratne (1974); W.L.D.P.T.S. de A. Goonatilake, BIS
Dimbula	6°58'	80°36'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Uva Province				
					Monaragala				
					Wellawaya				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Ratufa bicolor (Sparman, 1778)

Synonyms: *Sciurus bicolor* Sparman, 1778; *Sciurus giganteus* McClelland, 1839; *Sciurus macruroides* (nom. nud.) Hodgson, 1849; *Ratufa gigantea stigmata* Thomas, 1923

Order: Rodentia

Family: Sciuridae

Common names: English: Black Giant Squirrel, Malayan Giant Squirrel; Arunachali: *Adi Chikkat*; Bengali: *Boro Katbirali*; Lisu: *Bitha*; Nishi: *Seki*

Taxonomic remarks: Ellerman and Morrison-Scott (1951) listed eight subspecies, while Ellerman (1961), Moore and Tate (1965), and Corbet and Hill (1992) have listed five subspecies of which only one is valid for the region

Habit: Diurnal, arboreal; also forages on the forest floor

Habitat: Tropical and subtropical montane evergreen and dry deciduous forests

Niche: Tree hollows in mid high canopy

Elevation: 500-2,500m

Distribution

Global: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Lao PDR, Nepal, Myanmar, Malaysia, Thailand, Vietnam

South Asia: Bangladesh, Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bangladesh < 20,000; Bhutan > 20,000; India > 20,000; Nepal unknown]

Area of Occupancy: > 2,001 sq km [Bangladesh < 2,000; Bhutan > 2,000; India > 2,000; Nepal unknown]

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of 20 - 50 % in the last 40 years and a rate of < 20 % in next 20 years is predicted due to tree felling for firewood, forest clearance, monoculture plantations

Threats

Human induced habitat degradation due to shifting (jhum) agriculture practices, small-scale logging, clear-cutting, forest fires, expansion of human settlement, harvesting for local consumption, natural disasters as flooding, stoning by locals, predators and competitors

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Declining. Rate unknown.

Data source

Field studies, informal field sightings, literature, museum records; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bangladesh: Vulnerable ↓ Near Threatened

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major

LEAST CONCERN in South Asia

threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Bhutan: Least Concern

India: Least Concern

Nepal: Data Deficient

Rationale: Exact location not known

Wildlife Legislation:

Bangladesh: None

Bhutan: None

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Nepal: None

CITES: Appendix II

Presence in Protected Areas

Bangladesh

Lawachara NP

India

Arunachal Pradesh: Eagle's Nest WS, Kamlang WS, Mehao WS, Namdapha NP, Pakhui WS & NP, Tale Valley WS

West Bengal: Buxa TR, Gorumara WS, Jaldapara WS, Mahananda WS

Recommendations

Research: Survey, life history, limiting factors

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty, 1975; Corbet and Hill, 1992; Ellerman, 1961; Ellerman and Morrison-Scott, 1951; Hoffman *et al.*, 1993; Mishra *et al.*, 2004; Sarker and Sarker, 1988; BIS on species by: A. Datta, S. Chakraborty

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

India

Chakraborty, R. Koch Bihar, Jalpaiguri Dist, West Bengal, 1983, Population, behaviour of *Ratufa* sp.

Pratihari, S. Darjeeling and Jalpaiguri districts, West Bengal, 1994 onwards, Population, behaviour, distribution, feeding, reproduction of *Ratufa* sp.

Datta, A., Chang Lang, Tirap, Lohit Districts, Arunachal Pradesh, 2002-2003, Hunting surveys and mammal surveys

Datta, A., Lower Subansiri and Papumpare districts, Arunachal Pradesh, 1999, field visits

Datta, A., East Kameng and Changlang districts, Arunachal Pradesh, 1997-2000, Study on hornbill ecology

Datta, A., East and West Kameng districts, Arunachal Pradesh, 1995-1996, Impact of logging on squirrels and primates

Shankar Raman, T. R., Mizoram, 1994-1995, Impact of shifting cultivation in Birds

Distribution of *Ratufa bicolor* (Sparman, 1778) in South Asia (Bangladesh, Bhutan, India and Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Sylhet Lawachara NP	24°54'	91°56'	Trop. F.	Sarker and Sarker (1988)	Dreyi	28°15'	96°00'	Mon. St. F.	Ellerman (1961); in Mishmi hills
BHUTAN									
Central Bhutan ?localities Batase	-	-	-	S.S. Saha (pers. comm.) Chakraborty (1975); alt. 1,433m	Kamlang and Turung RF	27°40' to 28°00'	96°20' to 96°55'	Mon. St. F.	A. Datta, BIS; in Kameng WS. Threats include hunting, snaring, logging
Panjurmane	-	-	Mon. St. F.	Chakraborty (1975); alt. 1,525m	Tiki	28°00'	96°20'	Mon. St. F.	Ellerman (1961); in Mishmi hills
Shamgong	-	-	Mon. St. F.	Chakraborty (1975); alt. 1,960m	Lower Subansiri Monipoliyang-Pange-Tale valley	-	-	Mon. St. F.	A. Datta, BIS; in temperate forest tract in Tale valley WS. Threats include hunting, snaring, tree felling
Eastern Bhutan ? Localities Langsaran	-	-	Mon. St. F.	S.S. Saha (pers. comm.) Chakraborty (1975); alt. 1,250m	East Kameng Monal	-	-	Mon. St. F. Trop. F.	A. Datta, BIS; also at Giladhari, Namora, Papum Reserve. Elevation: 200-500m. Habitat degraded and disturbed. Threats include tree cutting, logging, hunting, snaring, habitat loss through plantations and encroachment
Western Bhutan ? Localities Chasilakha	-	-	Mon. St. F.	S.S. Saha (pers. comm.) Chakraborty (1975); alt. 1,860m	Seijusa	27°10'	92°50'	Mon. St. F.	A. Datta, BIS; also at Pakke Ke Sangh, Rilob, Papum RF & USF area. Elevation: 200-2,000m. Threats include tree cutting, logging, hunting, snaring
INDIA									
Arunachal Pradesh									
Changlang Namdapha NP	27°23' to 27°39'	96°15' to 96°58'	Mon. St. F. Trop. F.	S.S. Saha (pers. comm.); A. Datta, BIS. Also in Bulbulia, Deban, Haldibari, Hornbill, Firmbase, Miao, Vijayanagar. Elevation: 200-1,300m. Threats include hunting and trapping	Pakhui WS & NP	26°54' to 27°16'	92°36' to 93°09'	Mon. St. F. Trop. F.	A. Datta, BIS; threats include hunting and snaring
Pangsu and Rima RF	27°00' to 27°40'	95°00' to 97°00'	Mon. St. F.	A. Datta, BIS; in Jairampur Forest Division. Threats include hunting and snaring	Tirap Deomali Forest Division	-	-	Mon. St. F.	A. Datta, BIS; also in Borduria, Mopaya, Nakfan, Namsangmukh, Rugen. In all locations of the Deomali forest division habitat is degraded scrub, secondary forest and bamboo brakes. Threats include hunting, snaring, logging, habitat loss due to jhum cultivation and tea estates
Dibang Salty Lake Mehao	-	-	Mon. St. F. Trop. F.	A. Datta, BIS; also along lake in Mehao WS. Threats include Hunting, snaring, logging	West Kameng Doimara RF	26°59'	92°24'	Mon. St. F. Trop. F.	A. Datta, BIS; also at Tipi, Pagla Nala. Elevation: 200-800m. Threats include tree cutting, logging, hunting
Lohit Dening	28°01'	96°14'	Mon. St. F.	Ellerman (1961); in Mishmi hills	Eagle's Nest WS	27°14'	92°46'	Mon. St. F. Trop. F.	A. Datta, BIS; also at Chakoo, Doimara, Khelong, Ramlingam. Elevation: 200-1,500m. Threats include tree cutting, logging, hunting. Tropical and subtropical forest

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Ratufa bicolor* (Sparman, 1778) in South Asia (Bangladesh, Bhutan, India and Nepal) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Lat.	Long.	Habitat	Notes / Sources
Assam								
North Cachher Hills	25°30'	93°07'	Trop. F.	Ellerman (1961)	-	-	-	Ellerman & Morrison-Scott (1951); Ellerman (1961); Corbet & Hill (1992); Hoffman <i>et al.</i> (1993); Srinivasulu <i>et al.</i> (2004)
Goalparai/Barpeta Matanga river	-	-	Trop. F.	Ellerman (1961)	-	-	-	
Meghalaya								
Garohills Duragiri	-	-	Trop. F.	Ellerman (1961); in Garohills (25°30' N & 90°30' E)	-	-	-	
Nagaland								
Tuensang Naga Hills	26°00'	95°00'	Mon. St. F.	Ellerman (1961); in Naga Hills	-	-	-	
West Bengal								
Darjiling Darjiling	26°45'	88°15'	Mon. St. F.	S.S. Saha (pers. comm.)	-	-	-	
Mahananda WS	26°47' to 26°55'	88°23' to 89°33'	Mon. St. F.	S. Chakraborty, BIS	-	-	-	
Pashok	27°04'	88°24'	Mon. St. F.	Ellerman (1961)	-	-	-	
Other locations								
Jalpaiguri Buxa	26°45'	89°35'	Mon. St. F.	S. Chakraborty, BIS	-	-	-	
Chilapatta	-	-	Mon. St. F.	S. Chakraborty, BIS; in Jalpaiguri (26°30' N & 88°30' E)	-	-	-	
Gorumara NP	-	-	Mon. St. F.	S. Chakraborty, BIS; northwest of Banerhat (26°48' N & 89°02' E)	-	-	-	
Jaldapara WS	25°58' to 26°45'	89°08' to 89°55'	Mon. St. F.	S. Chakraborty, BIS	-	-	-	
Jalpaiguri	26°30'	88°30'	Mon. St. F.	S.S. Saha (pers. comm.)	-	-	-	
Khuntimari	-	-	Mon. St. F.	S. Chakraborty, BIS; in Jalpaiguri (26°30' N & 88°30' E)	-	-	-	

Locations from where *Ratufa bicolor* (Sparman, 1778) is known in Bangladesh, Bhutan, India and Nepal



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Ratufa indica (Erxleben, 1777)

VULNERABLE

Synonyms: *Sciurus indicus* Erxleben, 1777; *Sciurus purpureus* Zimmerman, 1777; *Sciurus maximus* Schreber, 1784; *Sciurus maxima* (Schreber, 1784); *Sciurus bombayus* Boddaert, 1785; *Sciurus bombaya* (Boddaert, 1785); *Sciurus malabaricus* Scopoli, 1786; *Sciurus malabarica* (Scopoli, 1786); *Sciurus elphinstonei* Sykes, 1831; *Sciurus elphinstoni* (Sykes, 1831); *Sciurus indicus* var. *bengalensis* Blanford, 1897; *Sciurus indicus* var. *dealbatus* Blanford, 1897; *Ratufa indica* var. *bengalensis* (Blanford, 1897); *Ratufa indica centralis* Ryley, 1913; *Ratufa indica superans* Ryley, 1913

Order: Rodentia

Family: Sciuridae

Common names: English: Indian Giant Squirrel

Taxonomic remarks: Abdulali and Daniel (1952) reported eight colour forms of this taxon from its range in India. Ellerman (1961) listed five subspecies - *Ratufa indica indica* (Erxleben, 1777), *Ratufa indica superans* Ryley, 1913, *Ratufa indica bengalensis* (Blanford, 1897), *Ratufa indica centralis* Ryley, 1913, and *Ratufa indica maxima* (Schreber, 1784). Corbet and Hill (1992) following Moore and Tate (1965) recognised four subspecies including *Ratufa indica dealbata* (Blanford, 1897) a pale coloured population from Gujarat. However, recent surveys have yielded no sightings of this taxon in its range in Gujarat

Habit: Diurnal, arboreal

Habitat: Tropical and subtropical forests

Niche: Canopies, tree holes

Elevation: 180-2,500m

Distribution

Global: Endemic to India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: 40/15, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat at the rate of 21 to 50 % in the last 20 years and a rate of < 20 % predicted in the next 20 years due to habitat alteration, clear felling, tree felling for fuel wood and forest fires

Threats

Habitat degradation due to expansion of agro-industry based large-scale and small-scale plantation, monoculture plantation, clear felling, selective logging, construction of dam, hunting for local consumption

Trade: For local consumption

Population

Generation time: Unknown

Total population: < 2,500

Mature individuals: < 2,500

Population trend: Declining > 30% in 25 years. Predicted decline > 30% in 25 years

Data source

Field study, informal sightings, indirect information, literature, museum records; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) VULNERABLE A2c+3c+4c

Rationale: Continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations.

Wildlife Legislation:

India: Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

CITES: Appendix II

Presence in Protected Areas

India

Andhra Pradesh: Eturnagaram WS, Gundla Brahmeshwaram WS, Nagarjunsagar-Srisaillam TR

Kerala: Aralam WS, Chimonni WS, Eravikulam WS, Idukki WS, Neyyar WS, Parambikulam WS, Peechi-Vazhani WS, Periyar TR, Peppara WS, Shendurmeey WS, Silent Valley NP, Thattekad WS, Wayanad WS

Maharashtra: Bhimashankar WS, Phansad WS, Tadoba NP

Tamil Nadu: Indira Gandhi (Annamalai) WS, Kalakad-Mundanthurai TR, Mudumulai WS, Srivilliputtur Grizzled Giant Squirrel S, Kallar WS, Kulathupala WS, Senthumani WS

Recommendations

Research: Survey, taxonomic research, limiting factors research

Management: Habitat management, monitoring

Captive stocks: None

Comments

Varied habitats ranging from tropical dry deciduous to tropical moist deciduous forest along the Eastern Ghats and Godavari river basin in Andhra Pradesh (C. Srinivasulu and Bhargavi Srinivasulu, pers. comm.)

Sources

Borges, Blanford, 1897; 1989; Chakraborty *et al.*, 2004; Ghose & Bhattacharyya, 1995b; Ellerman, 1961; Pradhan & Kurup, 2001; Pradhan, 2000; Srinivasulu *et al.*, 2004 BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu, J. Joshua, P. Padmanbhan

Compilers

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Reviewers: M.S. Pradhan, S. Chakraborty, C. Srinivasulu, P.O. Nameer and Sanjay Molur

Recent Field Studies

India

Easa *et al.*, Kerala, 1993-1998, Survey of small mammals of Kerala

Srinivasulu, C. and Bhargavi Srinivasulu, Throughout Andhra Pradesh, 1996 onwards, Status of mammals of Andhra Pradesh

Srinivasulu, C., Nagarjunsagar Srisaillam Tiger Reserve and Gundla Brahmeshwaram Wildlife Sanctuary, 1996 onwards, Biodiversity of Nallamala Hills, Eastern Ghats

Srinivasulu, C., Protected Areas and Reserve Forests of Godavari River belt in Telengana, 1996-2002, Biodiversity inventorying

Sanjay Molur, Distribution and status of rodents in Coorg Western Ghats, 2003-ongoing.

Distribution of *Ratufa indica* (Erleben, 1777) endemic to India from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andhra Pradesh									
Adilabad	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Gundla Brah-Meshwaram WS Isukagundam	15°32'	80°14'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS
Sirpur	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Maddipenta	15°35'	78°49'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS
Cuddapah	-	-	Trop. F.	Chakraborty et al. (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS	Visakhapatnam Ananthagiri Hills	18°20'	82°52'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS
Balapalli	-	-	Trop. F.	Chakraborty et al. (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS					
Koduru	13°58'	79°21'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; in Balapalli Range	Warangal Etur	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E), in Eturnagaram WS
Palakonda	-	-	Trop. F.	Chakraborty et al. (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS					
Seshachalam Hills	14°20'	78°15'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Pasra	18°12'	80°10'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; in tropical dry deciduous teak mixed bamboo forest; in Eturnagaram WS
Kurnool	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; SE of Rollapenta (15°52' N & 78°49' E)	Sarvai	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E); in Eturnagaram WS
Bairluty	-	-	Trop. F.	Chakraborty et al. (2004); specimen collected in 1913	Tadwai	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; tropical dry deciduous teak mixed bamboo forest; north of Pasra (18°12' N & 80°10' E), in Eturnagaram WS
Kurnool	15°35'	78°20'	Trop. F.	Chakraborty et al. (2004); specimen collected in 1913					
Pecheruvu	15°58'	78°49'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Tupaklagudem	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E), in Eturnagaram WS
Peda Chama	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; near Pecheruvu (15°58' N & 78°49' E)	Venkatapuram	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; north of Pasra (18°12' N & 80°10' E), in Eturnagaram WS
Rollapenta	15°52'	78°49'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS					
Thummalabailu	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; northwest of Pecheruvu (15°58' N & 78°49' E)					
Veligode	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; southwest of Rollapenta (15°52' N & 78°49' E)					
Mahbubnagar					Chhattisgarh				
Appapur	-	-	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS; southwest of Farahabad (16°17' N & 78°41' E)	Dhantewada	-	-	Trop. F.	Ghose & Bhattacharyya (1995a)
Farahabad	16°17'	78°41'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Indravathi NP	-	-	Trop. F.	Ghose & Bhattacharyya (1995a)
Kolhapur	16°41'	78°30'	Trop. F.	C. Srinivasulu and Bhargavi Srinivasulu, BIS	Gujarat				
Prakasam					Dangs	20°45'	73°45'	Trop. F.	Blanford (1897); Ellerman (1961)
Diguvametta	15°23'	78°53'	Trop. F.	Chakraborty et al. (2004); C. Srinivasulu and Bhargavi Srinivasulu, BIS	Mahal	-	-	Trop. F.	Blanford (1897); Ellerman (1961)
					Jharkhand				
					Paschim Singbhum	22°34'	85°49'	Trop. F.	Ellerman (1961)
					Chaibassa	-	-	Trop. F.	Ellerman (1961)
					Lula	-	-	Trop. F.	Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Ratufa indica* (Erxleben, 1777) (Endemic to India) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Sangarikote	-	-	Trop. F.	Ellerman (1961); near Chaibassa (22°34' N & 85°49' E)	Idduki Eravikulam WS Periyar TR	9°14'	76°52'	Trop. F.	Pradhan (2000) Trop. F. C. Srinivasulu (pers. comm.)
Karnataka					Palakkad Silent Valley NP	-	-	Trop. F.	S.S. Saha & C. Srinivasulu (pers. comm.)
Chamrajnagar Bandipur WS	-	-	Trop. F.	Pradhan and Kurup (2001)	Thiruvananthapuram Neyyar WS	-	-	Trop. F.	M.S. Pradhan & C. Srinivasulu (pers. comm.)
Dharwar	14°45'	75°10'	Trop. F.	Ellerman (1961)	Peppara WS	-	-	Trop. F.	M.S. Pradhan & C. Srinivasulu (pers. comm.)
Samasgi	14°45'	75°10'	Trop. F.	Ellerman (1961)	Ponmudi	8°44'	77°04'	Trop. F.	Ellerman (1961)
Kodagu	-	-	Trop. F.	Ellerman (1961)	Thrissur and Palakkad Nelliampathy Hills	-	-	Trop. F.	J. Joshua, BIS
Kutta	-	-	Trop. F.	Ellerman (1961)	Madhya Pradesh				
Makut	-	-	Trop. F.	Ellerman (1961)	Balaghat & Mandla	-	-	Trop. F.	Ghose & Bhattacharyya (1995a)
Wotekolli	-	-	Trop. F.	Ellerman (1961)	Kanha NP	-	-	Trop. F.	Ghose & Bhattacharyya (1995a)
Kodagu and Mysore Nagarhole WS	12°01'	76°09'	Trop. F.	Pradhan and Kurup (2001), also at Sankadkatte	Hoshangabad	-	-	Trop. F.	Ellerman (1961); in Bori WS
?Mysore	-	-	Trop. F.	Ellerman (1961)	Bori	-	-	Trop. F.	Ellerman (1961); in Bori WS
Barampaddi forest	-	-	Trop. F.	Ellerman (1961)	Dhain	22°27'	78°10'	Trop. F.	Ellerman (1961)
Shimoga	14°14'	74°50'	Trop. F.	Ellerman (1961)	Maharashtra				
Gersoppa	14°14'	74°50'	Trop. F.	Ellerman (1961)	Chandrapur	-	-	Trop. F.	Pradhan (1997)
Uttara Kanara	-	-	Trop. F.	Ellerman (1961)	Wardha River Basin	19°38'	79°49'	Trop. F.	Pradhan (1997)
? Locality	-	-	Trop. F.	Ellerman (1961)	Tadoba NP	-	-	Trop. F.	M.S. Pradhan (pers. comm.)
Devikop	15°08'	74°56'	Trop. F.	Ellerman (1961)	Satara	-	-	Trop. F.	Ellerman (1961)
Yellapur	14°58'	74°43'	Trop. F.	Ellerman (1961)	Gathmatha	-	-	Trop. F.	Ellerman (1961)
Kerala					Helwak	17°22'	73°44'	Trop. F.	Ellerman (1961)
Many locations	-	-	??	P. Padmnabhan, BIS; in many Protected Areas throughout Kerala	Thane, Pune & Raigarh	-	-	Trop. F.	Borges (1989); M.S. Pradhan (pers. comm.)
Anammad Estate	-	-	Trop. F.	Ellerman (1961)	Bhimashankar WS	-	-	Trop. F.	Borges (1989); M.S. Pradhan (pers. comm.)
Ultrakuly Estate	-	-	Trop. F.	Ellerman (1961)	Tamil Nadu				
Alleppey	-	-	Trop. F.	J. Joshua, BIS	Coimbatore	-	-	Trop. F.	Ellerman (1961)
Cholakudi	9°14'	76°52'	Trop. F.	J. Joshua, BIS	Gantha	-	-	Trop. F.	Ellerman (1961)
Konni	-	-	Trop. F.	J. Joshua, BIS	Dindigul	10°14'	77°29'	Trop. F.	Ellerman (1961)
Ernakulam	-	-	Trop. F.	Ellerman (1961); near Cochin (9°58' N & 76°14' E)	Kodaikanal	-	-	Trop. F.	Ellerman (1961)
Kottengadi Estate	-	-	Trop. F.	Ellerman (1961); near Cochin (9°58' N & 76°14' E)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Ratufa indica* (Erxleben, 1777) (Endemic to India) from literature and recent field studies ... Contd.

<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Dindigul and Madurai Kukkal Shola	10°18'	77°20'	Trop. F.	Ellerman (1961)
Nilgiris Kil Kotagiri Ootacamund	11°26' 11°24'	76°53' 76°42'	Trop. F. Trop. F.	Ellerman (1961) Ellerman (1961)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Ratufa indica* (Erxleben, 1777) is known in India



Ratufa macroura (Pennant, 1769)

VULNERABLE

Synonyms: *Sciurus zeyllanicus* Day, 1693; *Sciurus macrourus* Pennant, 1769; *Sciurus ceylonensis* Erxleben, 1777; *Sciurus ceylonica* (Erxleben, 1777); *Sciurus ceilonensis* Boddaert, 1785; *Sciurus tennentii* Blyth, 1849; *Sciurus macrourus* var. *monatnus* Kelaart, 1852; *Sciurus macrourus* var. *montana* (Kelaart, 1852); *Ratufa macrurus albipes* Blyth, 1859; *Sciurus macrura* Blanford, 1891; *Ratufa macroura sinhala* Phillips, 1931

Order: Rodentia

Family: Sciuridae

Common names: English: Grizzled Giant Squirrel

Taxonomic remarks: Ellerman (1961) listed three subspecies that were accepted later by Moore and Tate (1965), Phillips (1981) and Corbet and Hill (1992). *Ratufa macroura dandolena* is the taxon occurring in India (Ellerman, 1961)

Habit: Diurnal, arboreal

Habitat: Tropical montane evergreen forests, dry deciduous forests, rainforest

Niche: Riverine forests

Elevation: Unknown

Distribution

Global: Endemic to South Asia

South Asia: India, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India < 20,000; Sri Lanka > 20,000]

Area of Occupancy: > 2,000 sq km [India < 2,000; Sri Lanka > 2,000]

Locations/subpopulations: 31/10, Fragmented [In India:

Number of subpopulations and number of locations greater than 10 and 3 respectively]

Habitat status: Quantitative and qualitative decrease in habitat due to tree cutting, livestock grazing, plantations

Threats

Habitat loss and degradation due to agro-industry farming, small-scale logging, selective logging, increase in human settlements, forest fire, inter-specific competition, competition from alien species, hunting for local consumption purposes, presence of domestic predators

Trade: For local consumption

Population

Generation time: Unknown

Total population: < 500

Mature individuals: < 500

Population trend: Decline of > 30% in last 25 years. Predicted decline > 30% in next 25 years

Data source

Field study, informal sightings, literature, museum records; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) VULNERABLE A2c+3c+4c; D

Rationale: Continuing decline in population due to major threats over the last three generations. Predicted decline at the same rate over the next three generations. Number of mature individuals very low.

National Status (IUCN Ver. 3.1)

India: Endangered D

Rationale: Restricted population with very few mature individuals.

Sri Lanka: Endangered D

Rationale: Restricted population with very few mature individuals.

Wildlife Legislation:

India: Schedule I (Part I) of the Indian Wildlife (Protection) Act, 1972, amended up to 2002

Sri Lanka: None

CITES: Appendix II

Presence in Protected Areas

India

Tamil Nadu: Srivilliputhur Grizzled Giant Squirrel Sanctuary

Kerala: Chinnar WS

Sri Lanka

Central Province: Horton Plains NP; Sabargamuwa Province: Sinharaja RF

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

In India > 250 mature individuals are reported. This taxon is doing well in Sri Lanka. In its range it is hunted for local consumption. Intensive management is required for the Indian population possibly including captive breeding and reintroductions

Sources

Abhayratne, 1993; Ellerman, 1961; Phillips, 1980; Srinivasulu *et al.*, 2004 BIS on species by: J. Joshua, P. Padmanabhan, W.L.D.P.T.S. de A. Goonatilake

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: W.L.D.P.T.S. de A. Goonatilake, P.O. Nameer and Sanjay Molur

Recent Field Studies

Easa *et al.*, Western Ghats, Kerala, 1993-1998, Survey of small mammals in Kerala
Ramachandra, K. K., Chinnar Wildlife Sanctuary, Kerala, 1991, Survey of mammals in Kerala
Joshua, J., Annamalai Wildlife Sanctuary, Tamil Nadu, 1998-2003

Locations from where *Ratufa macroura* (Pennant, 1769) is known in India and Sri Lanka



Distribution of *Ratufa macroura* (Pennant, 1769) (Endemic to India and Sri Lanka) from literature and recent field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
INDIA					North Eastern Province				
Kerala					Mankeni	8°01'	81°29'	Trop. F.	Ellerman (1961)
Idukki					Sabaragamuwa				
Chinnar WS	-	-	Riv. F.	Ramachandran (1991); P.O. Nameer, pers. obs.	Kegalle	7°16'	80°22'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatillake, BIS
Tamil Nadu					Rathapura				
Coimbatore	11°15'	77°20'	Trop. F.	Ellerman (1961)	Adams Peak	6°48'	80°29'	Trop. F.	Phillips (1980)
Coimbatore	10°25'	77°16'	Trop. F.	Ellerman (1961)	Ketalapateia	-	-	Trop. F.	Ellerman (1961); in Sinharaja FR (6°24' N & 80°30' E)
Combu	10°40'	77°01'	Trop. F.	J. Joshua, BIS	Nivitigala	6°36'	80°27'	Trop. F.	Abhayaratne (1993)
Pollachi					Rathapura	6°40'	80°23'	Trop. F.	Phillips (1980), W.L.D.P.T.S. de A. Goonatillake, BIS
Madurai	9°56'	78°07'	Trop. F.	Ellerman (1961)	Sinharaja FR	6°24'	80°30'	Trop. F.	Ellerman (1961)
Madurai					Southern Province				
Salem	12°00'	78°00'	Trop. F.	Ellerman (1961), also at Kurumbupatti	Galle	6°03'	80°12'	Trop. F.	Phillips (1980)
Chetri Range					Galle	6°06'	80°18'	Trop. F.	Phillips (1980)
Virudunagar	9°31'	77°38'	Trop. F.	Ellerman (1961)	Kottawa				
Srivilliputtur					Hambantota	6°06'	80°52'	Trop. F.	Ellerman (1961)
SRI LANKA					Ranna				
Kelani Valley	-	-	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatillake, BIS	Matara	5°56'	80°32'	Trop. F.	Phillips (1980)
Eastern Province					Matara				
Maha Oya	-	-	Trop. F.	Ellerman (1961)	Uva Province				
Central Province					Monaragala	7°28'	79°50'	Trop. F.	Ellerman (1961)
Nuwara Eliya	6°49'	80°48'	Trop. F.	Ellerman (1961)	Kumbukkan	6°44'	81°06'	Trop. F.	Ellerman (1961)
Horton Plains					Wellawaya				
North Central					Western Province				
Pattipola	6°51'	80°50'	Trop. F.	Ellerman (1961)	Kalutara	6°34'	79°57'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatillake, BIS
Matale					Kalutara				
Gammaduwa	7°34'	80°42'	Trop. F.	Ellerman (1961); also at Maussakanda (6°27' N & 80°40' E)	Matugama				
Province					Anasigalla	6°31'	80°07'	Trop. F.	Ellerman (1961)
Tirrapara	-	-	Trop. F.	Ellerman (1961)	Colombo	6°55'	79°50'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatillake, BIS
Polomaruwa	8°22'	81°02'	Trop. F.	Ellerman (1961); also at Vedichchal	Colombo				
Kantalai									

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Tamiops macclellandi (Horsfield, 1840)

LEAST CONCERN in South Asia

Synonyms: *Sciurus macclellandi* Horsfield, 1840; *Sciurus maclellandi* (Horsfield, 1840) *Sciurus pembertonii* Blyth, 1842; *Sciurus macclellandi manipurensis* Bonhote, 1900

Order: Rodentia

Family: Sciuridae

Common names: English: Himalayan Striped Squirrel

Taxonomic remarks: Ellerman (1940, 1961) and Moore (1959) treated the genus *Tamiops* Allen, 1906 as one of the subgenus of *Callosciurus* Gray, 1867. Later, Moore and Tate (1965) elevated it to the generic level. Ellerman (1961)

included three subspecies, namely *Callosciurus macclellandi macclellandi* (Horsfield, 1840), *Callosciurus macclellandi barbei* (Blyth, 1847) and *Callosciurus macclellandi collinus* (Moore, 1958), while Corbet and Hill (1992) included six subspecies from the Indo-Malayan region. Of these only *Tamiops macclellandi macclellandi* (Horsfield, 1840) is found within the range of South Asia

Habit: Crepuscular and diurnal, arboreal

Habitat: Subtropical dry deciduous forests

Niche: In tree hollows in montane regions

Elevation: Up to 1,500m

Distribution

Global: Bhutan, Cambodia, China, India, Lao PDR, Malaysia, Myanmar, Nepal, Thailand, Vietnam

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan > 20,000; India 20,000; Nepal unknown]

Area of Occupancy: > 2,001 sq km [Bhutan > 2,000; India 2,000; Nepal unknown]

Locations/subpopulations: 26/many, Fragmented

Habitat status: Declining in habitat and quality due to anthropogenic activities has been noted

Threats

Habitat loss due to forest fire, encroachments, fragmentation, jhuming

Trade: Unknown

Population

Generation time: Unknown

Total population: > 10,000

Mature individuals: > 10,000

Population trend: Unknown

Data source

Informal sightings, literature, museum records; inferred; estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bhutan: Least Concern

India: Least Concern

Nepal: Data Deficient

Rationale: Exact location not known.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Pakhui WS, Namdapha NP

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty, 1975; Ellerman, 1961; Mandal *et al.*, 2000; Mishra *et al.*, 2004; Srinivasulu *et al.*, 2004

Compilers

Mike Jordan, T.P. Bhattacharyya, Jonathan Bielby, P. Padmanabhan, Mohanan Pillai, P.O. Nameer, Latha Ravikumar

Reviewers: Rest of the participants

Recent Field Studies

Datta, A., C. Mishra, and M.D. Madhusudan, Tawang, West Kameng Districts, Arunachal Pradesh, 2003, High Altitude Faunal Survey and Vegetation/Habitat mapping

Locations from where *Tamiops maclellandi* (Horsfield, 1840) is known in Bhutan, India and Nepal



Distribution of *Tamias maclelandi* (Horsfield, 1840) in South Asia (Bhutan, India and Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BHUTAN									
Central Bhutan									
Shamgong	-	-	Mon. St. F.	Chakraborty (1975); alt. 1,960m	Assam	25°05'	92°55'	Mon. St. F.	Ellerman (1961)
Eastern Bhutan									
Bulfai	-	-	Mon. St. F.	Chakraborty (1975); alt. 2,800m	Karimganj Cachar Hills	25°30'	93°00'	Mon. St. F.	Ellerman (1961)
Gomchu	-	-	Mon. St. F.	Chakraborty (1975); alt. 2,500m	Diking				
Kaling	-	-	Mon. St. F.	Chakraborty (1975); alt. 2,200m	Tinsukia Sadiya	27°50'	96°40'	Mon. St. F.	Ellerman (1961)
Western Bhutan									
NE of Simitokha	-	-	Mon. St. F.	Chakraborty (1975); alt. 3,200m	Manipur				
Susuna Ha Road	-	-	Mon. St. F.	Chakraborty (1975); alt. 2,350m	Aimole	-	-	Trop. F.	Ellerman (1961)
					Loanghol	-	-	Trop. F.	Ellerman (1961)
					Senapati				
					Machi	-	-	Trop. F.	Ellerman (1961)
INDIA					Mizoram				
Arunachal Pradesh					Lunglei				
Changlang					Sairep	22°49'	92°49'	Trop. F.	Mandal <i>et al.</i> (2004)
Namdapha NP	27°23' to 27°39'	96°15' to 96°58'	Mon. St. F.	Mishra <i>et al.</i> (2004)	Nagaland				
					Tuensang				
					Mokokchung	26°15'	94°15'	Mon. St. F.	Ellerman (1961). In Naga Hills
East Kameng									
Pakhui WS	26°54' to 27°16'	92°36' to 93°09'	Mon. St. F.	Mishra <i>et al.</i> (2004)	Sikkim				
					Ringin	-	-	Trop. F.	Ellerman (1961)
					Sedonchen	-	-	Trop. F.	Ellerman (1961)
Lohit									
Dening	28°01'	96°14'	Mon. St. F.	Ellerman (1961); in Mishmi Hills	North Sikkim				
Dreyi	28°15'	96°00'	Mon. St. F.	Ellerman (1961); in Mishmi Hills	Chungtang	27°38'	88°36'	Trop. F.	Ellerman (1961)
Ratana	28°40'	96°10'	Mon. St. F.	Ellerman (1961); in Mishmi Hills	Gangtok	27°20'	88°37'	Trop. F.	Ellerman (1961)
Tiki	28°00'	96°20'	Mon. St. F.	Ellerman (1961); in Mishmi Hills	West Sikkim				
					Sombare (?)	-	-	Trop. F.	Ellerman (1961)
West Kameng					NEPAL				
Mago Chu Valley	27°36'	92°02'	Mon. St. F.	Mishra <i>et al.</i> (2004)	? Locality	-	-	Trop. F.	Srinivasulu <i>et al.</i> (2004)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Anathana ellioti (Waterhouse, 1850)

NEAR THREATENED

Synonyms: *Tupaia ellioti* Waterhouse, 1850; *Anathana pallida* Lyon, 1913; *Anathana ellioti pallida* (Lyon, 1913); *Anathana wroughtoni* Lyon, 1913; *Anathana ellioti wroughtoni* (Lyon, 1913)

Order: Scandentia

Family: Tupaiidae

Common names: English: Madras Tree Shrew; Oriya: *Ban Chuchundriya*

Taxonomic remarks: Ellerman and Morrison-Scott (1966) synonymised *Anathana ellioti wroughtoni* (Lyon, 1913) and *Anathana ellioti pallida* (Lyon, 1913) with the nominate subspecies. For distribution records see Roonwal and Mohnot (1977), and Chorazyna and Kurup (1975)

Habit: Diurnal, singly or in small family units

Habitat: Tropical dry deciduous scrub and forested tracts

Niche: Scrub and mixed dry deciduous forest

Elevation: Up to 1400m

Distribution

Global: Endemic to India

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: Many/10, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat conditions at the rate of < 20% decline in last 10 years and next 10 years due to habitat loss, denudation for agriculture, thinning out of forest, plantation, development activities - construction of dams and roadways.

Threats

Wood plantations, small-scale logging, clear-cutting, human settlement, road transport, mortality due to road kills, dams, local harvest for medicinal use

Trade: Under barter system for medicinal use

Population

Generation time: Unknown

Total population: > 10,000

Mature individuals: > 10,000

Population trend: Declining, at the rate of 10% decline in last 10 years and same rate predicted for the next 10 years

Data source

Field studies, literature; inferred; observed; indirect information

Status

C.A.M.P. (IUCN Ver. 3.1) NEAR THREATENED

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Wildlife Legislation: None

CITES: Appendix II

Presence in Protected Areas

India

Andhra Pradesh: Eturnagaram WS, Gundlabrahmeshwaram Metta WS, Kawal WS, Nagarjunasagar Srisaillam TR

Madhya Pradesh: Bori WS and NP, Pench (Priyadarshini) NP, Pench NP

Maharashtra: Tadoba NP

Orissa: Chandaka Dampara WS, Satkosia Gorge WS

Recommendations

Research: Survey, life history, limiting factors

Management: Monitoring, habitat management

Conservation measures: *Needed:* Management plans, education awareness

Captive stocks: None

Comments

This species requires Conservation measures attention although it is relatively widespread. Pipalpankha in Satkosia Gorge WS in Berhampur district was a good habitat supporting a population of *A. ellioti* till 1998. Later activities for the construction of dam was started there resulting in total alteration/destruction of habitat

Sources

George, 1989; Shrivastava, 1995; Tiwari *et al.*, 2002 BIS on species by: C. Srinivasulu and Bhargavi Srinivasulu

Compilers

T.P. Bhattacharyya, S. Chakraborty, Meena Venkataraman, C. Srinivasulu, B.A. Daniel

Reviewers: M.S. Pradhan, S.S. Saha, T.P. Bhattacharyya, S. Chakraborty, C. Srinivasulu

Recent Field Studies

C. Srinivasulu & Bhargavi Srinivasulu, Hyderabad-Secunderabad Environs, Ranga Reddy District, Andhra Pradesh, 1990 onwards, Mammalian diversity and their status in Hyderabad and its environs

C. Srinivasulu, Nagarajunasagar Srisaillam Tiger Reserve and Gundla Brahmeshwaram Metta Wildlife Sanctuary, 1996 onwards, Biodiversity of Nallamala Hills

C. Srinivasulu, Eturnagaram Wildlife Sanctuary, Warangal District, Andhra Pradesh, 1997-1998, Vertebrate fauna of Eturnagaram Wildlife Sanctuary

C. Srinivasulu, Kawal Wildlife Sanctuary, Adilabad District, Andhra Pradesh, 1996 onwards, Vertebrate fauna of Kawal Wildlife Sanctuary

S. Chakraborty, Tikarpara, Orissa, 1996, Faunal Inventorisation

S. Chakraborty & S.S. Saha, Satkosia Gorge WS, Pipalpankha & Behrampur Districts, Orissa, 1998, Faunal Inventorisation
S. Karthikeyan, Yercaud, Coffee Estate, Tamil Nadu, (Feb 2003 - July 2003), WWF Tamil Nadu office study

Distribution of *Anathana ellioti* (Waterhouse, 1850) (Endemic to India) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Andhra Pradesh									
Adilabad	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS	Chinna	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, near Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Indhanpally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS	Chinthala	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, near Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Itikyalyal	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS	Pecheruvu	15°58'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, near Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS					
Kadam	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS	Pedda Manthana	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, near Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Pembi	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS					
Rampur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS	Potharajupenta Manthana	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, near Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Tadlapet	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS	Rollapenta	15°52'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, in Nagarjunasagar Srisaillam TR
Udhumpur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS	Rudrakode	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, near Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Utanoor	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed bamboo forest, S of Utanoor (19°22' N & 78°46' E) in Kawal WS	Thummalabailu	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, near Pecheruvu (15°58' N & 78°49' E) in Nagarjunasagar Srisaillam TR
Kurnool	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, near Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR					
Bairlutty	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, near Rollapenta (15°52' N & 78°49' E) in Nagarjunasagar Srisaillam TR					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Anathana ellioti* (Waterhouse, 1850) (Endemic to India) from literature and recent field studies ... Contd.

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Mahboobnagar Farnabad	16°17'	78°41'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, in Nagarjunasagar Srisaillam TR	Ranga Reddy Osman Sagar	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Scrubland, along the dyke in the garden in 1995; two individual sighted
Kolhapur	16°06'	78°18'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, nw of Nagarjunasagar Srisaillam TR	Warangal Chinna Bowenpally	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus-Cleistanthus complex, north of Pasra (18°12' N & 80°10' E) in Etumagaram WS
Lingal	16°17'	78°31'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, nw of Nagarjunasagar Srisaillam TR	Etur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus-Cleistanthus complex, north of Pasra (18°12' N & 80°10' E) in Etumagaram WS
Padra	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex, near Amrabad (16°23' N & 78°50' E) in Nagarjunasagar Srisaillam TR	Medharam	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus-Cleistanthus complex, north of Pasra (18°12' N & 80°10' E) in Etumagaram WS
Umamahesh- warani	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex, near Mannanur (16°22' N & 78°46' E) in Nagarjunasagar Srisaillam TR	Nagaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus-Cleistanthus complex, north of Pasra (18°12' N & 80°10' E) in Etumagaram WS
Prakasam Diguvametta	15°23'	78°50'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, in Gundla Brahmeshwaram WS	Pasra	18°12'	80°10'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus-Cleistanthus complex, in Etumagaram WS
Isukagundam	15°36'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, in Gundla Brahmeshwaram WS	Sarvai	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus-Cleistanthus complex, north of Pasra (18°12' N & 80°10' E) in Etumagaram WS
Maddipenta	15°44'	78°47'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus complex and mixed bamboo brakes, in Gundla Brahmeshwaram WS	Tadwai Venkatapuram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropical dry deciduous teak mixed forest with Terminalia-Anogeissus-Cleistanthus complex, north of Pasra (18°12' N & 80°10' E) in Etumagaram WS

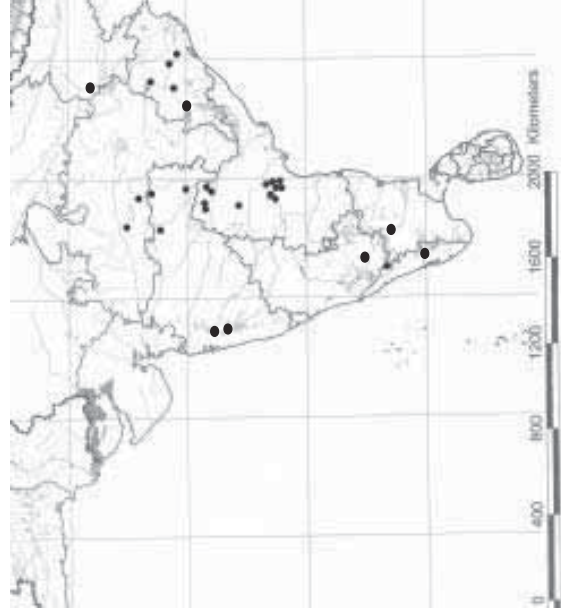
C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Anathana ellioti* (Waterhouse, 1850) (Endemic to India) from literature and recent field studies ... Contd.

<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
Kerala Wayanad Peryya	11°50'	75°50'	Trop. F.	George (1989)	Kalahandi Madanpur, Rampur				R. Chakraborty (2005)
Jharkhand Palamou				R. Chakraborty (2005)	Phulbani Kotagarh				R. Chakraborty (2005)
Madhya Pradesh Hoshangabad Bori WS	22°09'	77°26'	Trop. F.	Shrivastava (1995); R. Chakraborty (2005)	Puri Chilka Lake				R. Chakraborty (2005)
Chindwara & Seoni Pench WS	-	-	Trop. F.	M.S. Pradhan (Pers. Comm.)	Sambalpur Badrama	-	-	Trop. F.	T.P. Bhattacharyya (pers. comm.)
Pachmarhi				R. Chakraborty (2005)	Tamil Nadu Yercaud, Southern slopes of Shevroy hills				
Maharashtra Amravathi Melghat TR	21°30'	77°10'	Trop. F.	M.S. Pradhan (Pers. Comm.)	Salem Chettiri Range				R. Chakraborty (2005)
Chandrapur Tadoba WS	-	-	Trop. F.	Shrivastava (1995)					
Nagpur Pench NP	-	-	Trop. F.	M.S. Pradhan (pers. comm.)					
Pune Khandala				R. Chakraborty (2005)					
Thanke Matheran				R. Chakraborty (2005)					
Orissa Aungul Tikarpara	20°30'	83°08'	Trop. F.	S. Chakraborty (pers. comm.)					
Cuttack & Kurdha Nuakua	-	-	Trop. F.	Tiwari <i>et al.</i> (2002); c. 20°22' N & 85°46' E					
Dhenkanal Tikarpara				R. Chakraborty (2005)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Anathana ellioti* (Waterhouse, 1850) is known in India



Tupaia belangeri (Wagner, 1841)

Synonyms: *Cladobates belangeri* Wagner, 1841; *Tupaia glis assamensis* Wroughton, 1921; *Tupaia belangeri assamensis* (Wroughton, 1921); *Tupaia glis lepcha* Thomas, 1922; *Tupaia belangeri lepcha* (Thomas, 1922); *Tupaia glis verusuræ* Thomas, 1922; *Tupaia belangeri verusuræ* (Thomas, 1922)

Order: Scandentia

Family: Tupaiidae

Common names: English: Common Tree Shrew; Bengali: *Katberali*

Taxonomic remarks: Ellerman and Morrison-Scott (1951) listed it under *Tupaia glis* Diard, 1826, while chromosomal studies indicated it to be distinct (Arrighi *et al.*, 1969; Elliot *et al.*, 1969)

Habit: Diurnal, arboreal, singly or in small family units

Habitat: Tropical dry deciduous forest

Niche: Secondary forests and plantations

Elevation: 130-5,000m

Distribution

Global: Bangladesh, Bhutan, China, Cambodia, India, Laos, Malaysia, Myanmar, Thailand, Vietnam

South Asia: Bangladesh, Bhutan, India

Extent of Occurrence: > 20,000 sq km [Bangladesh > 20,000; Bhutan > 20,000; India > 20,000]

Area of Occupancy: > 2,001 sq km [Bangladesh > 20,000; Bhutan < 500; India > 20,000]

Locations/subpopulations: 17/7, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat conditions at the rate of 20 to 50% decline in last 15 years and a predicted rate of < 20% during the next 10 years due to habitat loss by human encroachment and settlements within forests, denudation for agriculture, thinning out of forests

Threats

Habitat loss due to invasive alien species, local harvesting and flooding

Trade: In local trade in and around Jaldapara WS

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Declining, at the rate of 10-15% decline in last 10 years and similar rate predicted for the next 10 years

Data source

Census monitoring, field studies, informal sightings, literature; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) NEAR THREATENED in South Asia

Rationale: This species is widely distributed in its range in South Asia, although in some specific areas its populations are under threat

National Status (IUCN Ver. 3.0)

Bangladesh: Near Threatened

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

NEAR THREATENED in South Asia

Bhutan: Endangered ↓ Vulnerable B2ab(ii,iii)

Rationale: Restricted in area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

India: Near Threatened

Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable.

Wildlife Legislation: None

CITES: Appendix II

Presence in Protected Areas

India

Arunachal Pradesh: Mehao WS, Namdapha NP, Pakhui WS

Mizoram: Dampa WS

West Bengal: Jaldapara WS, Singhalila NP

Recommendations

Research: Survey, life history, limiting factors

Management: Monitoring, habitat management

Captive stocks: None

Comments

This species requires Conservation measures attention although it is relatively widespread. This species is assessed as Near Threatened as the habitat is declining at a faster rate

Sources

Das *et al.*, 1995; Dash, 2000; Mishra *et al.*, 2004; Srinivasulu and Srinivasulu, 2004 BIS on species by: G. Maheswaran

Compilers

T.P. Bhattacharyya, S. Chakraborty, Meena Venkataraman, C. Srinivasulu, B.A. Daniel

Reviewers: M.S. Pradhan, S.S. Saha, T.P. Bhattacharyya, S. Chakraborty, C. Srinivasulu

Recent Field Studies

G. Maheswaran, Jaldapara WS, 2002-2003, Status survey and inventory

S. Chakraborty, Arunachal Pradesh, 1988, Faunal Inventorisation

S. Chakraborty, Sikkim, 1988 and 1992, Faunal Inventorisation

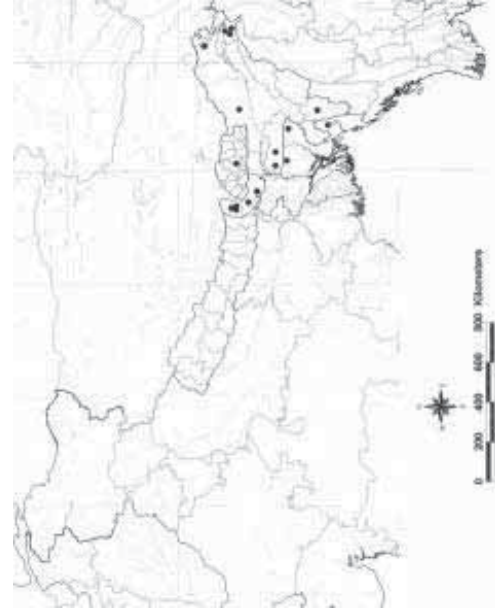
S. Chakraborty, West Bengal, 1984-1990, Faunal Inventorisation

S.S. Saha, Arunachal Pradesh, India and Bhutan, 1980-1990, Faunal Inventorisation

Distribution of *Tupaia belangeri* (Wagner, 1841) in South Asia (Bangladesh, Bhutan and India) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH					West Bengal				
Chittagong	22°00'	92°00'	Trop. F.	S.U. Sarker (pers. comm.)	Jalpaiguri	26°45'	89°21'	Trop. F.	BNHS Mammal Survey Record
Chittagong Hill Tracts					Hashimara	25°58'	89°08'	Trop. F.	G. Maheswaran, BIS
Mymensingh Garo Hills	-	-	Trop. F.	S.U. Sarker (pers. comm.)	Jaldapara WS	to 26°45'	to 89°55'		
Sylhet	24°32'	91°52'	Trop. F.	S.U. Sarker (pers. comm.)					
Sylhet Hill Tracts					Meghalaya				
BHUTAN					East Garo Hills	25°30'	90°30'	Trop. F.	Das <i>et al.</i> (1995)
Central Bhutan	26°51'	90°30'	Temp. F.	S.S. Saha (pers. comm.)	West Garo Hills	-	-	Trop. F.	Das <i>et al.</i> (1995)
Gaylagphug					West Garo Hills	-	-	Trop. F.	Das <i>et al.</i> (pers. comm.)
INDIA					Mizoram				
Arunachal Pradesh					Aizwal	-	-	Trop. F.	T.P. Bhattacharyya (pers. comm.)
Changlang	-	-	Mon. St. F.	S.S. Saha (pers. comm.), Mishra <i>et al.</i> (2004); This species has been recorded from many different localities in Nandapha NP (27°23' to 27°39' N, 96°15' to 96°58' E) from and around Gandhinagar; c. 300m	Dampa TR	-	-	Trop. F.	T.P. Bhattacharyya (pers. comm.)
Gandhigram									
Dibang	28°05'	95°45'	Mon. St. F.	S.S. Saha (pers. comm.); Many localities in and around the PA					
Mehao WS	to 28°15'	to 96°03'							
East Kameng	26°54'	92°36'	Mon. St. F.	Mishra <i>et al.</i> (2004); Many localities in and around the PA					
Pakhui WS	to 27°16'	to 93°09'							
Sikkim									
East Sikkim	27°20'	88°37'	Mon. St. F.	Dash (2000); Srinivasulu and Srinivasulu (2004)					
Gangtok									
Teesta Valley	26°30'	88°50'	Mon. St. F.	Dash (2000); Srinivasulu and Srinivasulu (2004)					
Turning	-	-	Mon. St. F.	Near Gangtok (27°20' N & 88°37' E); S.S. Saha (pers. comm.)					

Locations from where *Tupaia belangeri* (Wagner, 1841) is known in Bangladesh, Bhutan and India



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Tupaia nicobarica (Zeblebor, 1869)

ENDANGERED

Synonyms: *Cladobates nicobaricus* Zeblebor, 1869; *Tupaia nicobarica surda* Miller, 1902

Order: Scandentia

Family: Tupaiidae

Common names: English: Nicobar Tree Shrew

Taxonomic remarks: None

Habit: Diurnal, semi-arboreal, often seen on forest floors

Habitat: Semi evergreen forest

Niche: Pristine rainforest tracts

Elevation: Sea level to 1,000m

Distribution

Global: Endemic to India

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 9/3, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat conditions at the rate of < 20% decline in last 30 years and a predicted rate of > 20% during the next 10 years due to habitat loss by human encroachment and settlements, cultivation, predation by feral dogs and cats, and natural disasters such as tsunami

Threats

Habitat loss due to agriculture, change in land use pattern, human settlements, and introduced domestic mammals

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown. Relatively commoner on Great Nicobar Island

Data source

Census monitoring, field studies, informal sightings, literature; observed, inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat quality.

Wildlife Legislation: None

CITES: Appendix II

Presence in Protected Areas

India

Andaman & Nicobar Islands: Campbell Bay WS, Galathea NP

Recommendations

Research: Survey, taxonomic studies

Management: Monitoring, public awareness

Conservation measures: *Needed*: Identification of new Protected Areas

Captive stocks: None

Comments

This species requires immediate Conservation measures attention as it is prone to population decline resulting from predation by feral cats and dogs and also natural disasters

Sources

IUCN, 1995; Srinivasulu and Srinivasulu, 2004

Compilers

S.S. Saha, S. Chakraborty, C. Srinivasulu, T.P. Bhattacharyya, Wes Sechrest, Meena Venkataraman, B.A. Daniel

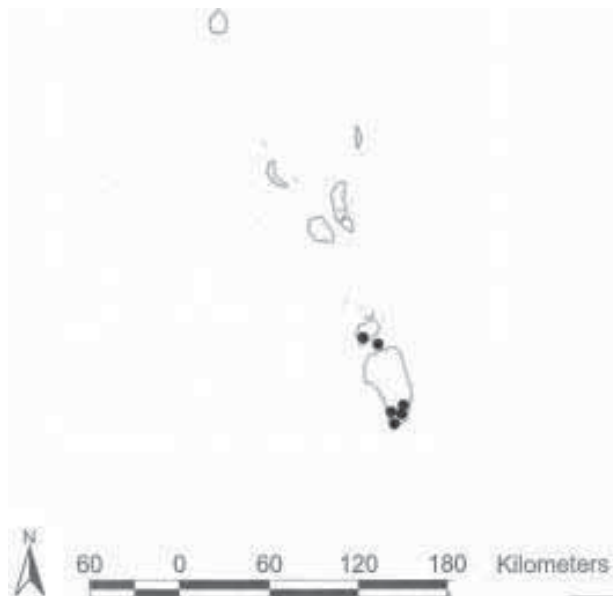
Reviewers: S.S. Saha, S. Chakraborty

Recent Field Studies

India

S.S. Saha, Andaman and Nicobar Islands, 1975 and 1990, Faunal Inventorisation

Locations from where *Tupaia nicobarica* (Zeblebor, 1869) is known in Nicobar Islands, India



Distribution of *Tupaia nicobarica* (Zelebor, 1869) (Endemic to India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Andaman and Nicobar Islands				
Great Nicobar Island	-	-	Rain. F.	S.S. Saha (pers. comm.); Near about 7°00' N and 93°54' E; South of Campbell Bay NP
16 km post on North-South Road				
25 km post on North-South Road	-	-	Rain. F.	S.S. Saha (pers. comm.); Near about 7°00' N and 93°54' E; South of Campbell Bay NP
35 km post on North-South Road	-	-	Rain. F.	S.S. Saha (pers. comm.); Near about 7°00' N and 93°54' E; South of Campbell Bay NP
42 km post on North-South Road	-	-	Rain. F.	S.S. Saha (pers. comm.); Near about 7°00' N and 93°54' E; South of Campbell Bay NP
Campbell Bay	-	-	Rain. F.	S.S. Saha (pers. comm.); Near about 7°00' N and 93°54' E.
Copenhagen	-	-	Rain. F.	S.S. Saha (pers. comm.); Near (towards) about 7°00' N and 93°54' E
Great Nicobar	-	-	Rain. F.	IUCN (1995)
Pygmaeon Point	6°44'	93°49'	Rain. F.	S.S. Saha (pers. comm.)
Little Nicobar Island				
Little Nicobar	7°20'	93°40'	Rain. F.	IUCN (1995)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Anourosorex squamipes Milne-Edwards, 1872

LEAST CONCERN in South Asia

Synonyms: *Anourosorex assamensis* Anderson, 1875

Order: Soricomorpha

Family: Soricidae

Common names: English: Mole-Shrew

Taxonomic remarks: Corbet and Hill (1992) doubt the status of the mainland subspecies – *Anourosorex squamipes capinas* Allen, 1923, *Anourosorex assamensis capito* Allen, 1923; and *Anourosorex squamipes schmidi* Petter, 1963, but further maintain that the insular form *Anourosorex squamipes yamashinai* Kuroda, 1935 could possibly be accepted as a distinct subspecies. IUCN (1995) retains this arrangement. However, Hutterer (1993) retains *Anourosorex squamipes schmidi* Petter, 1963 along with *Anourosorex squamipes yamashinai* Kuroda, 1935 as subspecies under this species following Petter (1963) and, Jameson and Jones (1977)

Habitat: Semi-fossorial and commensal

Habitat: Subtropical and tropical montane forested tracts

Niche: Stony escarpments, ruderal, sewage lines, etc

Elevation: 1,500 -3,100m

Distribution

Global: Bhutan, China, India, Myanmar, Taiwan, Thailand, Vietnam

South Asia: Bhutan, India

Extent of Occurrence: > 20,000 sq km [Bhutan < 20,000; India > 20,000]

Area of Occupancy: > 2,001 sq km [Bhutan < 2,000; India > 2,000]

Locations/subpopulations: 11/4, Contiguous

Habitat status: Change in habitat quality and quantity is not affecting this species as it is very adaptive in nature and has been observed to increase in numbers over the past few years

Threats

No perceivable threats are known either to the species or to the habitats where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Stable

Data source

Census monitoring, field studies, informal sightings, literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: This species is widely distributed and is very adaptive in nature

National Status (IUCN Ver. 3.0)

Bhutan: Least Concern

India: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Manipur: Turibani RF

Mizoram: Murlen NP

Recommendations

Research: Survey, life history

Management: Monitoring

Conservation measures: None

Captive stocks: None

Comments

Very widespread in its range and occurs marginally in South Asia.

Sources

Chakraborty *et al.*, 2004; IUCN, 1995, Das *et al.* (1995)

Compilers

Sujit Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: T.P. Bhattacharyya, S.S. Saha, Sujit Chakraborty

Recent Field Studies

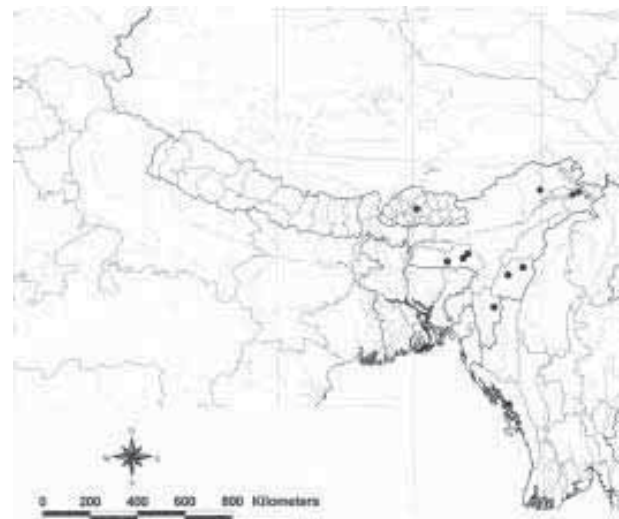
Saha, S.S. and T.P. Bhattacharyya, Mizoram, 1994-1997, Faunal Inventorisation

Saha, S.S. and T.P. Bhattacharyya, Manipur, 1992-1994, Faunal Inventorisation

Saha, S.S. and T.P. Bhattacharyya, Arunachal Pradesh, 1981-1988, Faunal Inventorisation

Saha, S.S., Bhutan, 1988, Faunal Inventorisation

Locations from where *Anourosorex squamipes* Milne-Edwards, 1872 is known in Bhutan and India



Distribution of *Anourosorex squamipes* Milne-Edwards, 1872 in South Asia (Bhutan & India) from literature and recent field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
BHUTAN				
Gomchu	-	-	Mon. St. F.	S.S. Saha (pers. comm.)
INDIA				
Arunachal Pradesh				
Dibang				
Tiwarigam	-	-	Mon. St. F.	S. Chakraborty (pers. comm.)
Lohit				
Dening	28°01'	96°14'	Mon. St. F.	IUCN (1995)
Dreyi	28°05'	96°20'	Mon. St. F.	IUCN (1995)
Manipur				
Senapati				
Turibari	-	-	Mon. St. F.	T.P. Bhattacharyya (pers. comm.)
Tamenglong				
Tamenglong	24°58'	93°33'	Mon. St. F.	T.P. Bhattacharyya (pers. comm.)
Meghalaya				
East Khasi Hills				
Laban	-	-	Mon. St. F.	Das <i>et al.</i> (1995); in Shillong (25°34' N & 91°53' E)
Jaintia Hills				
Jowai	25°27'	92°12'	Mon. St. F.	Das <i>et al.</i> (1995); T.P. Bhattacharyya (pers. comm.)
Shangpung	-	-	Mon. St. F.	Das <i>et al.</i> (1995); IUCN (1995)
East Khasi Hills				
Fruit Garden	-	-	Mon. St. F.	T.P. Bhattacharyya & A.K. Mandal (pers. comm.)
Mizoram				
Champai				
North Khawbung	23°10'	93°14'	Mon. St. F.	S.S. Saha & T.P. Bhattacharyya (Pers. Comm.)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Chimmarogale himalayica (Gray, 1842)

LEAST CONCERN in South Asia

Synonyms: *Crossopus himalayicus* Gray, 1842

Order: Soricomorpha

Family: Soricidae

Common names: English: Elegant Water Shrew, Himalayan Water Shrew Hindi: *Pani-chuchundar*

Taxonomic remarks: Ellerman and Morrison-Scott (1951) and Harrison (1958) included *Chimmarogale himalayica* (Gray, 1842) as subspecies of *Chimmarogale platycephala* (Temminck, 1842). Jones and Mumford (1971) did not consider *Chimmarogale platycephala* (Temminck, 1842) distinct from *Chimmarogale himalayica* (Gray, 1842). Later, Hoffman (1987) showed it to be distinct species based on detailed taxonomic study. Corbet and Hill (1992) and IUCN (1995) retained it as distinct species. Hutterer (1993) misinterpreted *Chimmarogale platycephala* (Temminck, 1842) to be listed by Ellerman and Morrison-Scott (1951) as subspecies of *Chimmarogale himalayica* (Gray, 1842)

Habit: Semi-aquatic

Habitat: Temperate forests near streams

Niche: In burrows on the banks or near streams

Elevation: 800-1,500m

Distribution

Global: China, India, Myanmar, Nepal, Taiwan, Vietnam

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal <5,000]

Area of Occupancy: > 2,001 sq km [India > 2,000; Nepal <500]

Locations/subpopulations: 4/2, Fragmented

Habitat status: Quantitative and qualitative decline in habitat status at the rate of > 15% in the past 10 years and similar trend predicted for the next 10 years due to landslides and logging

Threats

In Nepal, habitat loss due to agriculture expansion, selective logging, harvesting for medical use, poisoning, pest control activities and decline in prey species pose threat. In general the taxon is also under threat due to natural disasters such as landslides

Trade: Locally for medicinal use in Nepal

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Stable

Data source

Census monitoring, field studies, informal sightings, literature; inferred, observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Endangered ↓ Vulnerable

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the Nepal. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Arunachal Pradesh: Namdapha NP

Manipur: Turibani RF

Mizoram: Murlen NP

Recommendations

Research: Survey, life history

Management: Monitoring

Conservation measures: None

Captive stocks: None

Comments

Very widespread in its range and occurs marginally in South Asia.

Sources

Chakraborty *et al.*, 2004; IUCN, 1995; Ellerman & Morrison-Scott, 1951

Compilers

Sujit Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: T.P. Bhattacharyya, S.S. Saha, Sujit Chakraborty

Recent Field Studies

Saha, S.S. and T.P. Bhattacharyya, Mizoram, 1994-1997, Faunal Inventorisation

Saha, S.S. and T.P. Bhattacharyya, Manipur, 1992-1994, Faunal Inventorisation

Saha, S.S. and T.P. Bhattacharyya, Arunachal Pradesh, 1981-1988, Faunal Inventorisation

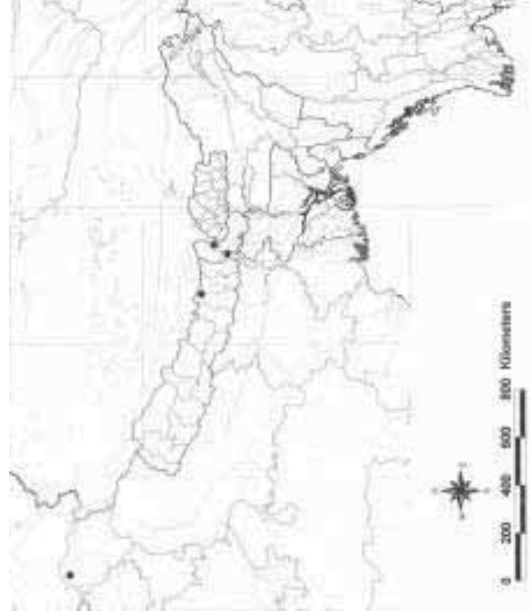
Saha, S.S., Bhutan, 1988, Faunal Inventorisation

Distribution of *Chimmarogale himalayica* (Gray, 1842) in South Asia (India and Nepal) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Himachal Pradesh				
Chamba	32°34'	76°08'	Mon.	Ellerman and Morrison-Scott (1951)
Chamba			St. F.	
Sikkim				
East Sikkim	27°13'	88°42'	Mon.	Mammal Survey Collection Records
Rongli			St. F.	C. Srinivasulu (pers. comm.)
West Bengal				
Darjiling	26°59'	88°17'	Mon.	Mammal Survey Collection Records
Gopaldhara			St. F.	C. Srinivasulu (pers. comm.)
NEPAL				
Eastern Nepal				
Lukla	27°49'	86°43'	Mon.	T.K. Shrestha, BIS; Near Namche
			St. F.	Bazar

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Locations from where *Chimmarogale himalayica* (Gray, 1842) is known in India and Nepal



***Crocidura andamanensis* Miller, 1902**

CRITICALLY ENDANGERED

Synonyms: None

Order: Soricomorpha

Family: Soricidae

Common names: English: Andaman White-toothed Shrew

Taxonomic remarks: According to Ellerman and Morrison-Scott (1951) this taxon is probably closely allied to *Crocidura nicobarica* Miller, 1902

Habit: Nocturnal

Habitat: Tropical deciduous and tropical evergreen forests

Niche: Lives inside leaf litter and rock crevices, also ruderal

Elevation: Up to 100m

Distribution

Global: Endemic to India

Extent of Occurrence: < 100 sq km [Mt. Harriett NP, from where the taxon is known, is 46.62 sq km; South Andaman Island is 112 sq km]

Area of Occupancy: 11-500 sq km [Based on locations of collected specimens in and around Mt. Harriet NP]

Locations/subpopulations: 2/1, Fragmented

Habitat status: Change in habitat quality and quantity due to human interference and tsunami

Threats

Habitat loss due to anthropogenic activities and natural disasters (tsunami)

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, museum specimens, literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **CRITICALLY ENDANGERED**

B1ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, single location with major threats affecting habitat area and quality.

Wildlife Legislation None

CITES: Not listed

Presence in Protected Areas

India

Andaman & Nicobar Islands: Mt. Harriet NP

Recommendations

Research: Survey, taxonomic and genetic studies

Management: Monitoring, captive breeding

Conservation measures: *Needed*: Communication and education awareness, taxonomic studies, identification of new protected areas, benign introductions

Captive stocks: None

Comments

Captive breeding programmes need to be initiated to boost the

existing populations. The taxonomic status of the species was questioned during the previous assessment and so it was placed in Data Deficient category. The group also recommended taxonomic and genetic studies and survey

Sources

Chakraborty *et al.*, 2004; Das, 1999; Ellerman and Morrison-Scott, 1951

Compilers

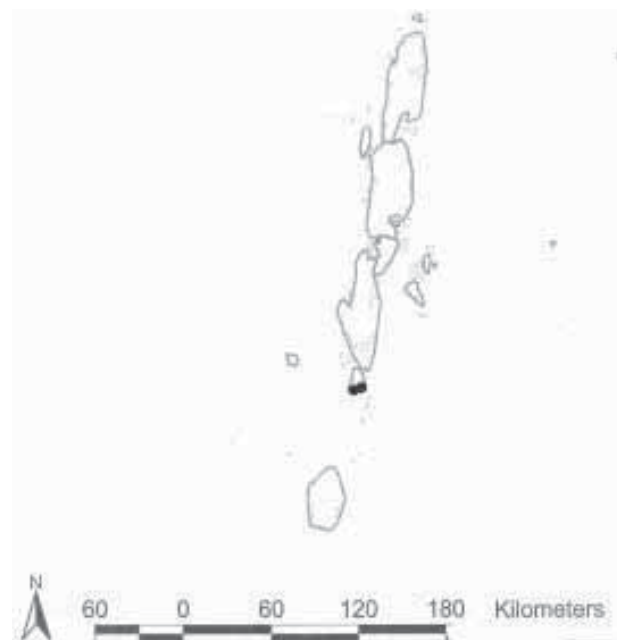
Sujit Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Sujit Chakraborty, S.S. Saha

Recent Field Studies

I. Das, Mt. Harriet National Park, South Andaman, 1997-1998, Mammals of Mt. Harriet NP

Locations from where *Crocidura andamanensis* Miller, 1902 is known in India



Distribution of *Crocodyra andamanensis* Miller, 1902 (Endemic to India) from literature and recent field studies

Distribution in
South Asia

Lat. Long.

Habitat

Notes / Sources

INDIA

Andaman and Nicobar Islands

South Andaman Island	11°31'	92°39'	Trop. F.	Ellerman and Morrison-Scott (1951); Chakraborty <i>et al.</i> (2004)
MacPherson's Strait	10°43'	92°43'	Trop. F.	Das (1999)
Mt. Harriet NP	to	to		
	11°51'	92°47'		

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Crocidura attenuata* Milne-Edwards, 1872**

LEAST CONCERN in South Asia

Synonyms: *Crocidura kingiana* Anderson, 1877; *Crocidura attenuata kingiana* (Anderson, 1877); *Crocidura rubricosa* Anderson, 1877; *Crocidura attenuata rubricosa* (Anderson, 1877)

Order: Soricomorpha

Family: Soricidae

Common names: English: Grey Shrew

Taxonomic remarks: Ellerman and Morrison-Scott (1951)

included four subspecies under this taxon. However, Corbet and Hill (1992), Hutterer (1993) and IUCN (1995) maintain that there are no subspecies of this taxon

Habit: Nocturnal

Habitat: Tropical and subtropical montane forests, foothill Terai and Babbar regions

Niche: Lives inside the leaf litter, secondary forest close to rivers

Elevation: Up to 800m

Distribution

Global: Bhutan, China, Australia, India, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Taiwan, Thailand

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan unknown; India > 20,000; Nepal < 5,000]

Area of Occupancy: > 2001sq km [Bhutan unknown; India > 2,000; Nepal < 500]

Locations/subpopulations: 17/8, Fragmented

Habitat status: Change in habitat quality and quantity due to habitat fragmentation, flooding, weed infestation and water logging

Threats

Habitat loss due to non-wood forest resource collection, invasive alien species, flooding and water logging, fires, and competitors and predators

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown in its range, but in Jaldapara WS, West Bengal population decline is to the tune of > 10% in last five years (G. Maheswaran, BIS)

Data source

Census monitoring, field studies, museum specimens, literature; informal sightings, inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bhutan: Data Deficient

Rationale: Exact location not known.

India: Least Concern

Nepal: Endangered ↓ Vulnerable

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of

occupancy, few and fragmented locations, with major threats affecting habitat area and quality in Nepal. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India West Bengal: Jaldapara WS

Recommendations

Research: Survey, taxonomic studies

Management: Habitat management, monitoring

Captive stocks: None

Comments

Northwest Indian records as well as the Murree Hills record are doubtful (S. Chakraborty, pers. comm.).

Sources

Chakraborty, 1983; Chakraborty *et al.*, 2004; Ellerman and Morrison-Scott, 1951; Shrestha, 1997, Corbet & Hill, 1992

Compilers

T.P. Bhattacharyya, S.S. Saha, Sujit Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Sujit Chakraborty, C. Srinivasulu

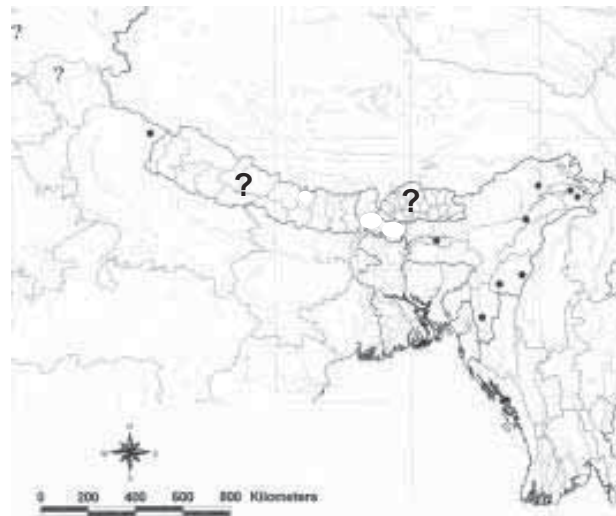
Recent Field Studies

Maheswaran, G., Jaldapara Wildlife Sanctuary, West Bengal, 2002-2003, Inventory studies

Bhattacharyya, T.P., Ukhrul and Tamenglong, Manipur, 1992, Faunistic surveys

Bhattacharyya, T.P., Sairep and Lunglei, Mizoram, 1995, Faunistic surveys

Locations from where *Crocidura attenuata* Milne-Edwards, 1872 is known in Bhutan, India and Nepal



Distribution of *Crocidura attenuata* Milne-Edwards, 1872 in South Asia (Bhutan, India & Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BHUTAN ? location	-	-	Mon. St. F.	Corbet & Hill (1992)	Churachandpur Churachandpur	24°20'	93°40'	Trop. F.	T. P. Bhattacharyya (pers. observ.) in 1995
INDIA					Meghalaya Jaintia Hills Shangpung	25°29'	92°21'	Trop. F.	Das et al. (1995)
Arunachal Pradesh					Mizoram Lunglei Sairep	22°49'	92°49'	Trop. F.	Bhattacharyya (1995)
Dening, Mishmi	28°01'	96°14'	Mon. St. F.	Zoological Survey of India Mammal Survey Records; in Namdapha NP (27°23' to 27°39' and 96°15' to 96°58')	NEPAL ? location				
Assam									
Kamrup									
Angarkatha	-	-	Mon. St. F.	Zoological Survey of India Mammal Survey Records					
Kamrup	26°20'	91°15'	Mon. St. F.	Ellerman & Morrison-Scott (1951)					
Darjiling Pashok	27°04'	88°24'	Mon. St. F.	Zoological Survey of India Mammals Survey Records; Ellerman & Morrison-Scott (1951); in foothill terai and babbar					
Jaipalguri Bhutan Duars	-	-	Mon. St. F.	Ellerman & Morrison-Scott (1951); in foothill terai and babbar (25°58' to 27°45' and 89°08' to 89°55')					
Jaldapara WS	26°30'	89°30'	Mon. St. F.	G. Maheswaran, BIS; in foothill terai and babbar					
Sibsagar Sibsagar	26°58'	94°39'	Mon. St. F.	Ellerman & Morrison-Scott (1951)					
Himachal Pradesh									
Chamba Chamba	32°34'	76°08'	Mon. St. F.	Zoological Survey of India Mammal Survey Records					
Manipur									
Ukhrul Ukhrul	25°07'	94°22'	Trop. F.	T. P. Bhattacharyya (pers. Observ.) in 1992					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Crocidura gueldenstaedtii (Pallas, 1811)

Synonyms: *Sorex gueldenstaedtii* Pallas, 1811; *Crocidura russula gueldenstaedtii* (Pallas, 1811); *Crocidura pullata* Miller, 1911; *Crocidura russula pullata* (Miller, 1911)

Order: Soricomorpha

Family: Soricidae

Common names: English: Gueldenstaedt's White-toothed Shrew

Taxonomic remarks: Ellerman and Morrison-Scott (1951) and Jenkins (1976) included *Crocidura gueldenstaedtii* Pallas, 1811 and *Crocidura pullata* Miller, 1911 as subspecies of *Crocidura russula* Hermann, 1780. These have been treated as distinct species by Corbet and Hill (1992), Hutterer (1993), and IUCN (1995). Furthermore, Hutterer (1993) referring to Catzeflis *et al.* (1985) opines that *Crocidura gueldenstaedtii* Pallas, 1811, *Crocidura pullata* Miller, 1911 and *Crocidura russula* Hermann, 1780 could be conspecific with *Crocidura suaveolens* Pallas, 1811

Habit: Nocturnal

Habitat: Unknown

Niche: Unknown

Elevation: Unknown

Distribution

Global: Afghanistan, Georgia, India, Pakistan

South Asia: India, Pakistan

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: 6/2, Fragmented

Habitat status: Change in habitat quality and quantity due to habitat fragmentation and anthropogenic activities

Threats

Habitat loss and fragmentation

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, literature; subjective; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **NOT EVALUATED in South Asia**

Rationale: This taxon has been presently synonymised with *Crocidura suaveolens* (Wes Sechrest, pers. comm.). Its record in South Asia is doubtful. *Crocidura pullata* which was earlier synonymised with *C. gueldenstaedtii* has been resurrected again as a distinct species.

National Status (IUCN Ver. 3.0)

India: Not Evaluated

Rationale: Due to taxonomic uncertainty

Pakistan: Not Evaluated

Rationale: Due to taxonomic uncertainty

Wildlife Legislation: None

CITES: Not listed

NOT EVALUATED in South Asia

Presence in Protected Areas

None

Recommendations

Research: Taxonomic studies

Captive stocks: None

Comments

This taxon may not occur in South Asia (Wes Sechrest, pers. comm.). In India and Pakistan needs to be verified for its correct taxonomic identity.

Sources

Chakraborty, 1983; Chakraborty *et al.*, 2004; Roberts, 1997

Compilers

Sujit Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Wes Sechrest

Recent Field Studies

None

Locations from where *Crocidura gueldenstaedtii* (Pallas, 1811) is known in India and Pakistan



Distribution of *Crocidura gueldenstaedtii* (Pallas, 1811) in South Asia (India & Pakistan) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Himachal Pradesh				
Solan	30°53'	76°57'	Temp.	F. Roberts (1997)
Kasauli				
Jammu & Kashmir				
South Kashmir	-	-	Temp.	F. Chakraborty (1983); type locality of <i>Crocidurapullata</i> Miller, 1911
Kothiar				
Pahalgam	34°02'	75°20'	Temp.	F. Roberts (1997)
Sardalla	-	-	Temp.	F. Roberts (1997)
PAKISTAN				
North West Frontier Province				
Hazara	34°14'	73°22'	Mon.	Roberts (1997); in Murree Hills
Thandiani			St. F.	
Punjab				
Rawalpindi	33°55'	73°27'	Mon.	Roberts (1997); in Murree Hills
Gharianl			St. F.	

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Crocidura hispida* Thomas, 1913**

VULNERABLE

Synonyms: None

Order: Soricomorpha

Family: Soricidae

Common names: English: Andaman Shrew

Taxonomic remarks: Known only from type locality in Northern Middle Andaman Island. Taxonomic status uncertain

Habit: Nocturnal

Habitat: Tropical evergreen forests

Niche: Lives under leaf litter

Elevation: Up to 100m

Distribution

Global: Endemic to India

Extent of Occurrence: < 100 sq km

Area of Occupancy: < 100 sq km

Locations/subpopulations: 1/1

Habitat status: Unknown

Threats

Unknown

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimen, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **VULNERABLE D2**

Rationale: Restricted in area of occupancy (< 100 sq km) and occurs in only one location.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic studies

Captive stocks: None

Comments

The group recommended that taxonomic and genetic studies and field surveys

Sources

Chakraborty *et al.*, 2004; IUCN (1995); Thomas, 1913

Compilers

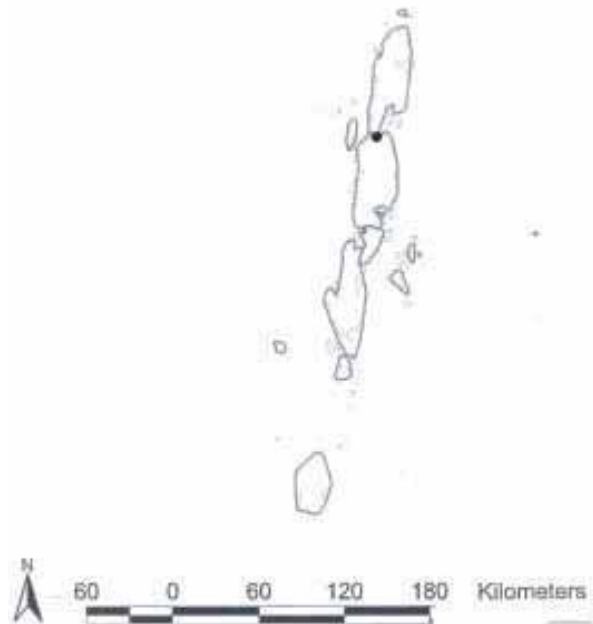
Sujit Chakraborty, C. Srinivasulu, T.P. Bhattacharria, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants

Recent Field Studies

None

Location from where *Crocidura hispida* Thomas, 1913 is known in India



Distribution of *Crocidura hispida* Thomas, 1913 (Endemic to India) from literature and field studies

Distribution in
South Asia

Lat.

Long.

Habitat

Notes / Sources

INDIA

Andaman and Nicobar Islands

Middle Andaman Island

North End 12°30' 92°50'

Trop. F. Thomas (1913); Chakraborty et al. (2004);
type locality

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Crocidura horsfieldi* (Tomes, 1856)**

Synonyms: *Sorex horsfieldi* Tomes, 1856 *Crocidura retusa* Peters, 1870; *Sorex (Crocidura) myoides* Blanford, 1875

Order: Soricomorpha

Family: Soricidae

Common names: English: Horsfield's Shrew

Taxonomic remarks: Refer Jenkins (1976) and Jameson and Jones (1977) for further details. Variations between insular (Sri Lanka) and Himalayan forms require further taxonomic studies

Habit: Nocturnal

Habitat: Tropical dry deciduous forest and subtropical montane forest

Niche: Leaf litter. On the mainland inhabits Himalayan forest tracts, while in Sri Lanka it inhabits montane wet zone, low land wet zone and wet patana grasslands

Elevation: 100-4,000m [Sri Lanka 100-2,500m]

Distribution

Global: India, Japan, Myanmar, Nepal and Sri Lanka

South Asia: India, Nepal and Sri Lanka

Extent of Occurrence: > 20,000 sq km [India unknown; Nepal unknown; Sri Lanka < 20,000]

Area of Occupancy: 501-2,000 sq km [India < 2,000; Nepal unknown; Sri Lanka < 2,000]

Locations/subpopulations: 20/4, Fragmented

Habitat status: Quantitative and qualitative habitat loss at the rate of ~50% (at least in Sri Lanka) in the past 10 years and a predicted rate of > 25% decline due to human interference and habitat fragmentation

Threats

Habitat loss due to anthropogenic activities and forest fires

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimens, informal sightings, literature; inferred, observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Vulnerable D2

Rationale: Known only from three fragmented locations

Nepal: Vulnerable D2

Rationale: Known only from one isolated location.

Sri Lanka: Vulnerable B1ab(iii)+2ab(iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

LEAST CONCERN in South Asia

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic studies [northern, that is mainland, and Sri Lankan population need to be verified as belonging to same species]

Captive stocks: None

Comments

Lundee *et al.* (2003) restricted the population of S. India and Sri Lanka as of *C. horsfieldi* but however they have not ascertained the status of Jammu & Kashmir, and Nepal populations. The species needs more research to determine its distributional limit. If this species is restricted to Sri Lanka and S. India, then its Conservation measures status needs to be re-evaluated. The working group feels that the insular population that of Sri Lanka might be taxonomically a separate entity with southern Indian population may be similar, but the Northern population from Jammu & Kashmir and Nepal are too widely separated from that of the southern populations. Pending taxonomic clarification, nothing can be commented about its status.

Sources

Chakraborty, 1983; Chakraborty *et al.*, 2004; Phillips, 1980; Rao and Ashwathnarayana, 1978; Lundee *et al.*, 2003; Philips, 1935

Compilers

T.P. Bhattacharyya, S.S. Saha, Sujit Chakraborty, C. Srinivasulu, W.L.D.P.T.S. de A. Goonatilake, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Sujit Chakraborty, W.L.D.P.T.S. de A. Goonatilake

Recent Field Studies

Sri Lanka

Zoysa and Raheem, Kudawa, Sinharaja Forest Reserve, Ratnapura, Sabaragamuwa, 1987

Locations from where *Crocidura horsfieldi* (Tomes, 1856) is known in India, Nepal and Sri Lanka



Distribution of *Crocodylus horsfieldi* (Tomes, 1856) in South Asia (India, Nepal and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA									
Karnataka									
Mysores	-	-	Trop. F.	Ashwathnarayana and Rao (1978)	Ratnapura	6°24'	80°30'	Rain F.	W.L.D.P.T.S. de A. Goonatilake, BIS
near Mysore	-	-	-	Pradhan & Kurup (2001) reports its occurrence in Nilgiri BR	Kudawa				
? Location									
Jammu and Kashmir					Uva Province				
Ladakh	34°10'	77°35'	Temp. F.	Chakraborty (1983)	Badulla	6°56'	81°07'	Rain F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Leh					Namunukula				
NEPAL									
Eastern Nepal					Western Province				
? Location	-	-	-	Shrestha (1997)	Gampaha	6°26'	80°30'	S. Eve.	W.L.D.P.T.S. de A. Goonatilake, BIS
SRI LANKA					Aruggoda			F.	
Central Province					Handurumulla	7°15'	80°07'	S. Eve.	W.L.D.P.T.S. de A. Goonatilake, BIS
Kandy	7°13'	80°40'	S. Eve.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Mirigama	6°56'	79°59'	S. Eve	W.L.D.P.T.S. de A. Goonatilake, BIS
Galaha	7°17'	80°38'	S. Eve.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Kandy	-	-	S. Eve.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Medamah-nuware	7°15'	80°36'	S. Eve.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Peradiniya	7°17'	80°49'	S. Eve.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Urugala									
Matale									
Gammaduwa	7°34'	80°42'	S. Eve.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Talawakele	6°56'	80°39'	S. Eve.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Nuwara Eliya									
Agarapatana	-	-	Rain F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS					
Dayagama	8°09'	80°31'	Rain F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS					
Nanu Oya	6°56'	80°40'	Rain F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS					
Nuwara Eliya	6°58'	80°56'	Rain F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Crocidura jenkinsi* Chakraborty, 1978**

CRITICALLY ENDANGERED

Synonyms: None

Order: Soricomorpha

Family: Soricidae

Common names: English: Jenkin's Andaman Spiny Shrew

Level of assessment: Species

Taxonomic remarks: None

Habit: Nocturnal/crepuscular, semi fossorial

Habitat: Tropical moist deciduous forest

Niche: Lives under the leaf litter, one adult was taken from forest guest house in Mt. Harriet NP

Elevation: Up to 100m

Distribution

Global: Endemic to India

Extent of Occurrence: < 100 sq km

Area of Occupancy: < 100 sq km [Mt. Harriet NP from where the species has been collected is 42.62 sq km]

Locations/subpopulations: 2/1, Fragmented

Habitat status: Change in habitat quality and quantity due to human interference and tsunami

Threats

Habitat loss due to selective logging, anthropogenic activities and natural disasters

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, museum specimen, literature; inferred, observed

Status

C.A.M.P. (IUCN Ver. 3.1) **CRITICALLY ENDANGERED**

B1ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, single location with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India:

Andaman and Nicobar Islands: Mt. Harriet NP

Recommendations

Research: Survey

Management: Habitat management, monitoring for more biological information, captive breeding for species recovery and benign introduction

Captive stocks: None

Comments

Captive breeding programme should be commenced

Sources

Chakraborty *et al.*, 2004; Das, 1999

Compilers

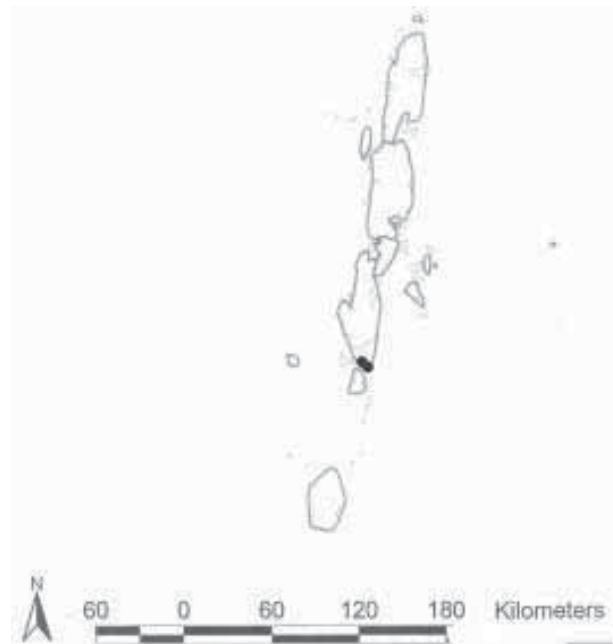
Sujit Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Sujit Chakraborty

Recent Field Studies

I. Das, Mt. Harriet National Park, South Andaman, 1997-1998, Mammals of Mt. Harriet NP

Locations from where *Crocidura jenkinsi* Chakraborty, 1978 is known in India



Distribution of *Crocidura jenkinsi* Chakraborty, 1978 (Endemic to India) from literature and recent field studies

Distribution in
South Asia

Lat.

Long.

Habitat

Notes / Sources

INDIA

Andaman and Nicobar Islands

South Andaman

Island

Mt. Harriet NP

10°43' 92°43'

to

11°51' 92°47'

Wright Myo

Trop. F.

Chakraborty *et al.* (2004)

Trop. F. Das (1999)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Paddy. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Crocidura leucodon* (Hermann, 1780)**

Synonyms: *Sorex leucodon* Hermann, 1780

Order: Soricomorpha

Family: Soricidae

Common names: English: Bicoloured White-toothed Shrew

Taxonomic remarks: Chakraborty (1983) reports its occurrence in India based on a male specimen collected in 1974 from Daksum, Jammu and Kashmir

Habit: Nocturnal, fossorial

Habitat: Subtropical montane forest

Niche: Coniferous forests in and around agricultural fields

Elevation: ~ 2,384m

Distribution

Global: Throughout Europe (much of Central and Eastern), Saudi Arabian peninsula, east up to Iran

South Asia: India

Extent of Occurrence: < 100 sq km

Area of Occupancy: < 100 sq km

Locations/subpopulations: 1/1, Unknown

Habitat status: Unknown

Threats

Threats not known for this species or for the habitat where it occurs

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimens, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) DATA DEFICIENT in South Asia

Rationale: Although widely distributed in its range across Europe and northern Asia, this taxon is known only from single specimen collected from Daksum, Jammu & Kashmir, India. Since, the taxonomic status of this specimen is not yet certain, the species was assigned Data Deficient in South Asia.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic studies

Management: Habitat management, monitoring

Captive stocks: None

Comments

This taxon is known from South Asia based on a single specimen collected from Jammu and Kashmir (Chakraborty, 1983). Taxonomic uncertainty on this taxon exists.

Sources

Chakraborty, 1983; Chakraborty *et al.*, 2004

DATA DEFICIENT in South Asia

Compilers

Sujit Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Sujit Chakraborty

Recent Field Studies

None

Location from where *Crocidura leucodon* (Hermann, 1780) is known from India



Distribution of *Crocidura leucodon* (Hermann, 1780) in South Asia (India) from literature and field studies

Distribution in
South Asia

Lat. Long.

Habitat

Notes / Sources

INDIA

Jammu and Kashmir

Udhampur
Daksum

- - Trop. F. Chakraborty (1983); Chakraborty *et al.*
(2004)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Crocidura miya Phillips, 1929

ENDANGERED

Synonyms: None

Order: Soricomorpha

Family: Soricidae

Common names: English: Sri Lankan Long-tailed Shrew

Taxonomic remarks: None

Habit: Nocturnal/crepuscular, fossorial

Habitat: Tropical montane forest

Niche: Wet Patana grasslands, highland and lowland rain forests

Elevation: 330-2,310m

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 101-5,000 sq km [Estimated 2,400]

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 4/2, Contiguous

Habitat status: Quantitative and qualitative decline in habitat conditions at the rate of < 20% during the past 10 years and a similar trend predicted for the next 10 years due to deforestation and clear felling

Threats

Deforestation, clear felling and forest fires

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimens, informal sightings, literature; observed, inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey

Management: Habitat management, monitoring

Captive stocks: None

Comments

Report from Sinharaja Forest Reserve in 1987 is an authentic record and the species could occur in between rest of the reported areas and thus the range could be contiguous

Sources

Chakraborty *et al.*, 2004; Phillips, 1935; Zoysa & Raheem, 1987; BIS on species by: W.L.D.P.T.S. de A. Goonatilake

Compilers

Sujit Chakraborty, C. Srinivasulu, W.L.D.P.T.S. de A. Goonatilake, T.P. Bhattacharyya, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants

Recent Field Studies

Sri Lanka

Zoysa and Raheem, Sinharaja Forest Division, Ratnapura District, Sabargamuwa Province, 1987, Faunal inventorisation

Locations from where *Crocidura miya* Phillips, 1929 is known in Sri Lanka



Distribution of *Crocidura miya* Phillips, 1929 (Endemic to Sri Lanka) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
SRI LANKA				
Central Province				
Kandy	7°15'	81°31'	Rain. F.	Phillips (1935); W.L.D.P.T.S. de A.
Moolagama				Goonatliake, BIS
Nuwara-Eliya	6°55'	80°50'	Rain. F.	Phillips (1935); W.L.D.P.T.S. de A.
Hakgala				Goonatliake, BIS
Ohiya	6°49'	80°50'	Rain. F.	Phillips (1935); W.L.D.P.T.S. de A.
				Goonatliake, BIS
Thalawakela	6°56'	80°39'	Rain. F.	Phillips (1935); W.L.D.P.T.S. de A.
				Goonatliake, BIS
Sabaragamuwa Province				
Ratnapura	6°24'	80°30'	Rain. F.	W.L.D.P.T.S. de A. Goonatliake, BIS; Zoysa
Sinharaja FR				and Raheem, 1987

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Crocidura nicobarica* Miller, 1902**

ENDANGERED

Synonyms: None

Order: Insectivora

Family: Soricidae

Common names: English: Nicobar Shrew

Taxonomic remarks: None

Habit: Nocturnal, semi fossorial

Habitat: Tropical moist deciduous forest

Niche: Lives under leaf litter. In 1975, specimens of *Crocidura* sp. (supposed to be this species) were seen in leaf litter from Campbell Bay to Galathea river mouth. No specimens were collected then, but in a subsequent visit in 1984 it was found that the entire area was cleared for road construction (S.S. Saha, pers. comm.)

Elevation: Up to 100m

Distribution

Global: Endemic to India

Extent of Occurrence: 101-5,000 sq km [The species is known from Great Nicobar Island whose area is approximately 980 sq km]

Area of Occupancy: < 100 sq km

Locations/subpopulations: 1/1, Contiguous [Recent survey conducted in the area did not yield new specimens (S.S. Saha and S. Chakraborty, pers. comm.)]

Habitat status: Change in habitat quality and quantity due to human interference, selective logging and tsunami

Threats

Habitat loss due to selective logging, anthropogenic activities and natural disasters

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, museum specimen, literature; observed, inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Andaman and Nicobar Islands: Campbell Bay NP, Galathea NP

Recommendations

Research: Survey

Management: Habitat management, captive breeding for species recovery and benign introduction

Captive stocks: None

Comments

The species is probably extinct, but needs more surveys to establish this. Captive breeding programme should be commenced

Sources

Chakraborty *et al.*, 2004; Miller, 1902

Compilers

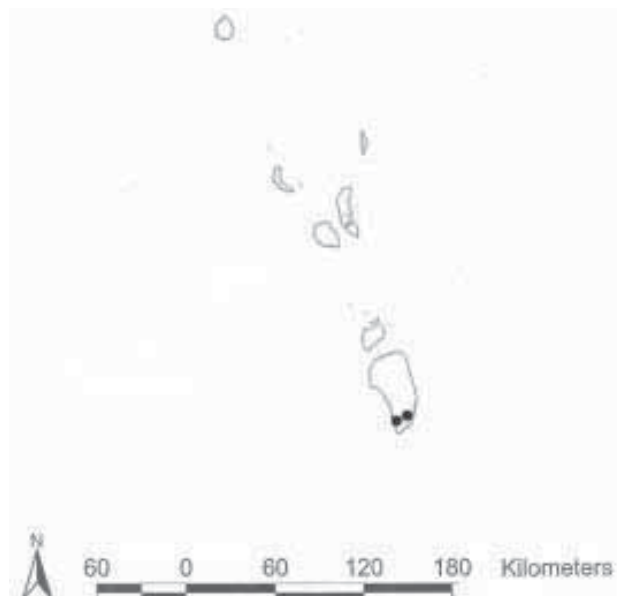
Sujit Chakraborty, Meena Venkataraman, C. Srinivasulu, Wes Sechrest, B.A. Daniel

Reviewers: Sujit Chakraborty, S.S. Saha

Recent Field Studies

None

Locations from where *Crocidura nicobarica* Miller, 1902 is known in India



Distribution of *Crocidura nicobrica* Miller, 1902 (Endemic to India) from literature and field studies

Distribution in
South Asia

Lat.

Long.

Habitat

Notes / Sources

INDIA

Andaman and Nicobar Islands

Great Nicobar Island

7°00'

93°50'

Rain F. Miller (1902); Chakraborty *et al.* (2004).

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Crocidura pergrisea Miller, 1913

DATA DEFICIENT

Synonyms: None

Order: Soricomorpha

Family: Soricidae

Common names: English: Pale Grey Shrew

Taxonomic remarks: Ellerman and Morrison-Scott (1951) included *zarudnyi* Ognev, 1928 as subspecies of this taxon. Hassinger (1973) treated *zarudnyi* Ognev, 1928 as a distinct species, a trend that was followed by Corbet and Hill (1992), Hutterer (1993) and IUCN (1995). This is known only from the type locality. Roberts (1997) reports further localities from Pakistan which provisionally may belong to *C. zarudnyi*. Pakistan specimens assigned to this taxon needs taxonomic study

Habit: Not known

Habitat: Temperate forest

Niche: Not known

Elevation: Not known

Distribution

Global: Endemic to India

Extent of Occurrence: Not known

Area of Occupancy: Not known

Locations/subpopulations: 1/1

Habitat status: Unknown

Threats

Threats not known for this species or the habitat from where it was reported

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimen, literature; inferred

Status C.A.M.P. (IUCN Ver. 3.1) DATA DEFICIENT

Rationale: This species is known only from the type locality and no information is available

Wildlife Legislation None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic studies

Captive stocks: None

Comments

Earlier it was considered as part of larger species complex including *C. zarudnyi* with wide distribution from Asia Minor to India

Sources

Chakraborty *et al.*, 2004; Miller, 1913

Compilers

Sujit Chakraborty, Meena Venkataraman, C. Srinivasulu, Wes Sechrest, B.A. Daniel

Reviewers: Sujit Chakraborty, C.Srinivasulu

Recent Field Studies

None

Locations from where *Crocidura pergrisea* Miller, 1913 is known from India



Distribution of *Crocidura pergrisea* Miller, 1913 (Endemic to India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Jammu and

Kashmir

Gilgit

Skoro Loomba

35°25' 75°44'

Temp. F. Miller (1913); Chakraborty *et al.* (2004).

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Crocidura zarudnyi* Ognev, 1928**

Synonyms: *Crocidura pergrisea zarudnyi* (Ognev, 1928)
Order: Soricomorpha
Family: Soricidae
Common names: English: Zarudny's Shrew
Taxonomic remarks: Earlier named as *Crocidura tatarica* Ognev, 1921, the name that was preoccupied by *Crocidura nyansae tatarica* Dollman, 1915 a taxon from Africa. Thus, the current name *Crocidura zarudnyi* Ognev, 1928 is valid
Habit: Nocturnal, solitary
Habitat: Semi to hot desert
Niche: Warmer deserts and mountains and denuded soils
Elevation: 500 -2,700m

Distribution

Global: Afghanistan, Iran, Pakistan
South Asia: Pakistan
Extent of Occurrence: 101-5,000 sq km
Area of Occupancy: 101-5,000 sq km
Locations/subpopulations: 3/2, Contiguous
Habitat status: Unknown

Threats

Threats not known for this species or the habitat from where it was reported
Trade: Unknown

Population

Generation time: Unknown
Total population: Unknown
Mature individuals: Unknown
Population trend: Unknown

Data source

Museum specimen, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

Wildlife Legislation None

CITES: Not listed

Presence in Protected Areas

Pakistan Baluchistan: Hingol NP; Ziafet Juniper Forest WS

Recommendations

Research: Survey, taxonomic studies
Management: Habitat management, monitoring

Captive stocks: None

Comments

Earlier it treated as subspecies of *C. pergrisea*

Sources

Chakraborty *et al.*, 2004; Charles and Kilpatrick (1997); Roberts (1997)

Compilers

T.P. Bhattacharyya, S.S. Saha, Sujit Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

LEAST CONCERN in South Asia

Reviewers: Sujit Chakraborty, C. Srinivasulu

Recent Field Studies

None

Locations from where *Crocidura zarudnyi* Ognev, 1928 is known in Pakistan



Distribution of *Crocidura zarudnyi* Ognev, 1928 in South Asia (Pakistan) from literature and field studies

<u>Distribution in</u> South Asia	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
PAKISTAN				
Baluchistan				
Makran	30°02'	66°28'	D.	Roberts (1997); Woods and Kilpatrick (1997)
Chagi	25°45'	65°33'	D.	Roberts (1997); Woods and Kilpatrick (1997)
Hingol				
Ziarat	30°22'	67°44'	Semi D.	Roberts (1997); Woods and Kilpatrick (1997)
Ziarat				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Feroculus feroculus* (Kelaart, 1850)**

ENDANGERED

Synonyms: *Crocidura macropus* Blyth, 1888; *Sorex feroculus* Kelaart, 1850; *Sorex macropus* Blyth, 1851; *Sorex nuwara-ellia* Kelaart, 1851; *Sorex newara* Wagner, 1855

Order: Soricomorpha

Family: Soricidae

Common names: English: Kelaart's Long-clawed Shrew

Taxonomic remarks: For details refer Phillips (1980). Corbet and Hill (1992) indicated that there is an old unconfirmed report of this taxon from Palni Hills, Tamil Nadu in India.

However, Pradhan *et al.* (1997) have confirmed its occurrence and distribution in southern India

Habit: Nocturnal, semi-fossorial

Habitat: Subtropical and tropical montane forest, in Sri Lanka, mountain wet zone

Niche: Leaf litter near montane swamps and marshes. In Sri Lanka, montane rainforests, wet patana grasslands

Elevation: ~2,310 m

Distribution

Global: Endemic to South Asia

South Asia: India, Sri Lanka

Extent of Occurrence: 101-5,000 sq km [India < 5,000; Sri Lanka < 5,000]

Area of Occupancy: 11-500 sq km [India < 500; Sri Lanka < 500]

Locations/subpopulations: 7/3, Fragmented

Habitat status: In Sri Lanka, the habitat where this taxon occurs is declining in quality

Threats

Habitat loss due to anthropogenic activities and forest fires.

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, literature, indirect information; observed, inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & Ver. 3.0) **ENDANGERED B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

National Status (IUCN Ver. 3.0)

India: ENDANGERED B1ab(iii)+2ab(iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. The Indian population is isolated from the Sri Lankan population, hence status not changed.

Sri Lanka: ENDANGERED B1ab(iii)+2ab(iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. The Indian population is isolated from the Sri Lankan population, hence status not changed.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India:

Kerala: Eravikulam NP

Sri Lanka: *Central Province*: Horton Plains NP

Recommendations

Research: Survey

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty *et al.*, 2004; Phillips, 1935; Pradhan *et al.*, 1997; Corbet & Hill, 1992; Pradhan & Kurup, 2001; BIS on species by: W.L.D.P.T.S. de A. Goonatilake; P. Padmanabhan

Compilers

Sujit Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, W.L.D.P.T.S. de A. Goonatilake, B.A. Daniel

Reviewers: W.L.D.P.T.S. de A. Goonatilake, C. Srinivasulu, Sujit Chakraborty

Recent Field Studies

Karthik Shankar, Upper Bhavanis, Nilgiris district, Tamil Nadu, 1993-1998, Small mammals studies
Pradhan, M.S., Eravikulam NP, Kerala, 1990-1995, Faunal inventorisation

Locations from where *Feroculus feroculus* (Kelaart, 1850) is known in India and Sri Lanka



Distribution of *Feroculus feroculus* (Kelaart, 1850) (Endemic to India and Sri Lanka) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Kerala				
Idukki	-	-	S. Eve. F.	Pradhan <i>et al.</i> (1997); Pradhan and Kurup (2001); also near the Eravikulam NP Hut in Core Area; in monatine forest patch
Tamil Nadu				
Dindigul and Madurai	10°12'	77°30'	S. Eve. F.	Corbet and Hill (1992)
Paini Hills				
Nilgiris				
Upper Bhavani	10°27'	77°41'	S. Eve. F.	Pradhan <i>et al.</i> (1997)
SRI LANKA				
Central Province				
Horton Plains	6°49'	80°48'	Rain. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatillake, BIS
Nuwara Eliya	6°58'	80°56'	Rain. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatillake, BIS
Uva Province				
Haputale	6°47'	80°57'	Rain. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatillake, BIS
Ohiya	6°49'	80°50'	Rain. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatillake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Nectogale elegans Milne-Edwards, 1870

NEAR THREATENED in South Asia

Synonyms: *Nectogale sikhimensis* de Winton and Styan, 1899

Order: Soricomorpha

Family: Soricidae

Common names: English: Elegant Water Shrew, Web-footed Water Shrew

Taxonomic remarks: Monospecific, distributed in the Himalayas from Nepal to Sichuan in China. See Hoffman (1987) for comments on status of *Nectogale sikhimensis* de Winton and Styan, 1899 based on which Corbet and Hill (1992), Hutterer (1993) and IUCN (1995) treated it as a distinct subspecies

Habit: Semi-aquatic and semi-fossorial, feeds on small fishes and aquatic invertebrates

Habitat: Montane temperate forest with streams

Niche: Leaf litter near montane streams

Elevation: 900-2,270m

Distribution

Global: China, India, Myanmar, Nepal

South Asia: India, Nepal

Extent of Occurrence: < 20,000 sq km [India < 20,000; Nepal unknown]

Area of Occupancy: < 2,000 sq km [India < 2,000; Nepal unknown]

Locations/subpopulations: 2/1, Contiguous

Habitat status: Quantitative and qualitative decline at the rate of > 10% in the past 10 years and a similar trend predicted for the next 10 years due to human induced habitat alterations

Threats

Habitat loss due to selective logging and natural disasters like landslides

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Museum specimen, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE ↓ NEAR THREATENED in South Asia B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the South Asian region. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

National Status (IUCN Ver. 3.0)

India: Vulnerable ↓ Near Threatened B1ab(iii)+2ab(iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in India. However, since the species occurs in the neighbouring Nepal with chances of migration/recolonisation, it is downgraded by one category.

Nepal: Vulnerable ↓ Near Threatened B1ab(iii)+2ab(iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in Nepal. However, since the species occurs in the neighbouring India with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty *et al.*, 2004; IUCN, 1995

Compilers

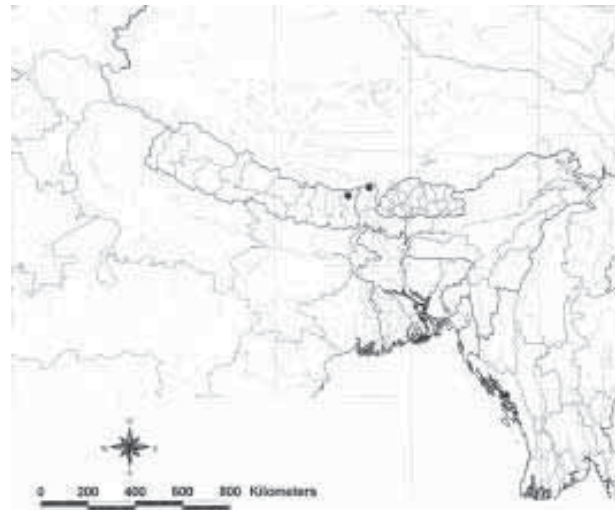
T.P. Bhattacharyya, S.S. Saha, Sujit Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants.

Recent Field Studies

None

Locations from where *Nectogale elegans* Milne-Edwards, 1870 is known in India and Nepal



Distribution of *Nectogale elegans* Milne-Edwards, 1870 in South Asia (India and Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Sikkim				
North Sikkim	27°50'	88°42'	Temp. F.	IUCN (1995); Specimen in Zoological Survey of India, Kolkata
Yumthang				
NEPAL				
Eastern Nepal	-	-	-	IUCN (1995)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Solisorex pearsonii* Thomas, 1924**

ENDANGERED

Synonyms: None

Order: Soricomorpha

Family: Soricidae

Common names: English: Pearson's Long-clawed Shrew;

Sinhalese: *Hik-miya*, *Kanu-miya*, Tamil: *Mung'elli*

Taxonomic remarks: None

Habit: Nocturnal, terrestrial and semi-fossorial

Habitat: Montane rainforests

Niche: Wet patana grasslands

Elevation: 950-2,310m

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 6/2, Fragmented

Habitat status: Quantitative and qualitative decline at the rate of < 20% in the past 10 years due to deforestation by clear felling for plantations and forest fires

Threats

Habitat loss due to selective logging and undergrowth clearance for cardamom plantations in Knuckles Range, and forest fires

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum specimen, literature; observed, inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Sri Lanka:

Central Province: Hakgala Nature Reserve

Recommendations

Research: Survey, taxonomic research, limiting factors

Management: Habitat management, monitoring, captive breeding

Captive stocks: None

Comments

All locations are based on historical records excepting W.L.D.P.T.S. de A. Goonatilake's (2003) record at Riverstern in November 2003 and one photo record at Nuwara Eliya by Wildlife Heritage Trust, Sri Lanka researchers (W.L.D.P.T.S. de A. Goonatilake, pers. comm.)

Sources

Chakraborty *et al.*, 2004; Phillips, 1932

Compilers

W.L.D.P.T.S. de A. Goonatilake, S. Chakraborty, C. Srinivasulu, Wes Sechrest, B.A. Daniel

Reviewers: W.L.D.P.T.S. de A. Goonatilake, C. Srinivasulu

Recent Field Studies

Sri Lanka

W.L.D.P.T.S. de A. Goonatilake, Riverstern, Knuckles Range, 2003, Rapid assessment of Sri Lanka's rodents and shrews

Locations from where *Solisorex pearsonii* Thomas, 1924 is known in Sri Lanka



Distribution of *Solisorex pearsonii* Thomas, 1924 (Endemic to Sri Lanka) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
SRI LANKA				
Central Province				
Matale				
Gammaduwa	7°34'	80°42'	Rain F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Matale	7°31'	80°38'	Rain F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Riverstern, Knuckles FR	7°24'	80°48'	Rain F.	W.L.D.P.T.S. de A. Goonatilake, BIS; ~1,200m
Nuwara Eliya Hakgala	6°55'	80°50'	Rain F.	Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS
Nuwara Eliya	6°58'	80°56'	Rain F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS; In the early 1990s Wildlife Heritage Trust of Sri Lanka researchers could rediscover and photograph a specimen after a long gap (C. Srinivasulu, pers. comm.)
Nanu Oya	6°56'	80°40'	Rain F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Sorex bedfordiae* Thomas, 1911**

Synonyms: *Sorex cylindricauda bedfordiae* (Thomas, 1911)

Order: Soricomorpha

Family: Soricidae

Common names: English: Lesser Stripe-backed Shrew

Taxonomic remarks: Ellerman and Morrison-Scott (1951) treated *Sorex bedfordiae* Thomas, 1911 as synonym of *Sorex cylindricauda* Milne-Edwards, 1872. Corbet (1978), Hoffman (1987), Corbet and Hill (1992), Hutterer (1993) and IUCN (1995) treated this species specifically different than *Sorex cylindricauda* Milne-Edwards, 1872

Habit: Unknown

Habitat: Unknown

Niche: Unknown

Elevation: Unknown

Distribution

Global: China, Myanmar, Nepal

South Asia: Nepal

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: 2

Habitat status: Unknown

Threats

Unknown

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **DATA DEFICIENT in South Asia**

Rationale: Habit and habitat of this species is not known, therefore not possible to derive the status in South Asia.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey studies, taxonomic research

Captive stocks: None

Comments

Outside South Asia, this taxon is widespread in its range. We do not have any information on the subspecies *Sorex bedfordiae nepalensis* from Eastern Nepal

Sources

Agrawal and Chakraborty, 1971; Chakraborty *et al.*, 2004; Weigel, 1969

DATA DEFICIENT in South Asia

Compilers

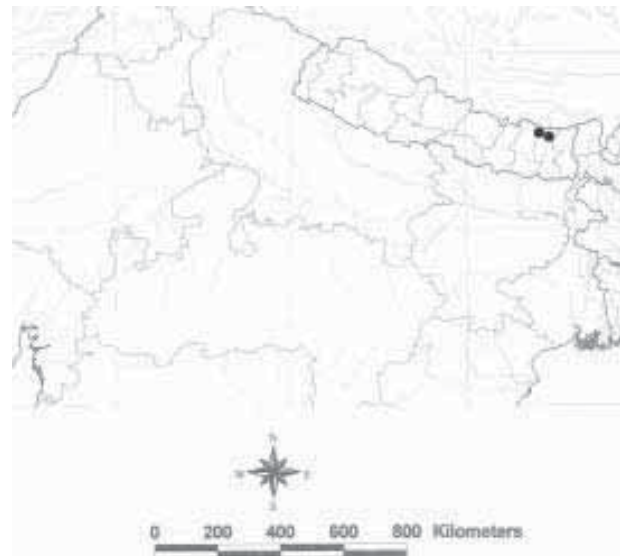
S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Wes Sechrest, Meena Venkataraman, B.A. Daniel

Reviewers: C. Srinivasulu

Recent Field Studies

None

Locations from where *Sorex bedfordiae* Thomas, 1911 is known in Nepal



Distribution of *Sorex bedfordiae* Thomas, 1911 in South Asia (Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
NEPAL				
Eastern Nepal				
Khumjung	-	-	Temp. F.	Agrawal and Chakraborty (1971); Chakraborty <i>et al.</i> (2004)
Ringmo	-	-	Temp. F.	Weigel (1969); Chakraborty <i>et al.</i> (2004)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Sorex excelsus* Allen, 1923**

DATA DEFICIENT IN SOUTH ASIA

Synonyms: *Sorex araneus excelsus* (Allen, 1923)

Order: Soricomorpha

Family: Soricidae

Common names: English: Highland Shrew; Lofty Shrew

Taxonomic remarks: Ellerman and Morrison-Scott (1951) treated *excelsus* Allen, 1923 as a subspecies of *Sorex araneus* Linnaeus, 1758. Corbet (1978) treated it as a possible subspecies of *Sorex asper* Thomas, 1914. Hutterer (1993) following Hoffman (1987) treated *Sorex excelsus* Allen, 1923 as a distinct species and further remarked that the specimen from Nepal reported by Agrawal and Chakraborty (1971) possibly belonged to this species

Habit: Unknown

Habitat: Unknown

Niche: Unknown

Elevation: Unknown

Distribution

Global: China, Nepal

South Asia: Nepal

Extent of Occurrence: Unknown

Area of Occupancy: Unknown

Locations/subpopulations: 1

Habitat status: Unknown

Threats

Unknown

Trade: Unknown

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **DATA DEFICIENT in South Asia**

Rationale: Habit and habitat of this species is not known, therefore not possible to derive the status in South Asia.

Wildlife Legislation None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Captive stocks: None

Comments

Outside South Asia, this taxon is widespread in its range. The working group doubts the taxonomic status of the specimen from Nepal. Different Researcher's opinion regarding this taxon has been summarised by Chakraborty *et al.* (2004) in their taxonomic review. No other specific information is available in literature

Sources

Agrawal and Chakraborty, 1971; Chakraborty *et al.*, 2004

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants.

Recent Field Studies

None

Locations from where *Sorex excelsus* Allen, 1923 is known in Nepal



Distribution of *Sorex excelsus* Allen, 1923 in South Asia (Nepal) from literature and field studies

Distribution in
South Asia

Lat.

Long.

Habitat Notes / Sources

NEPAL

Eastern Nepal

Khumbu

Khumjung

7°34'

80°42'

Temp. F. Agrawal and Chakraborty (1971)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Sorex minutus Linnaeus, 1766

LEAST CONCERN in South Asia

Synonyms: *Sorex thibetanus* (nom. nud.) Kastschenko, 1905

Order: Soricomorpha

Family: Soricidae

Common names: English: Eurasian Pygmy Shrew, Lesser Shrew

Taxonomic remarks: Ellerman and Morrison-Scott (1951) doubtfully treated *planiceps* Miller, 1911 as subspecies of *Sorex minutus* Linnaeus, 1766. Corbet and Hill (1992) following Hoffman (1987) included *planiceps* under *Sorex thibetanus* Kastschenko, 1905. The specimen described as *Sorex thibetanus* was found to be those akin to *Sorex minutus* thus invalidating the former name and being considered as *nomen dubium* (Hutterer, 1979). Hutterer (1993) and IUCN (1995) treated *Sorex minutus* Linnaeus, 1766 and *Sorex planiceps* Miller, 1911 as distinct species based on the latter's distinctly larger cranial measurements.

Habit: Terrestrial, active during the day and at night

Habitat: Temperate forest

Niche: Coniferous forests and alpine regions above tree line

Elevation: 2,280-3,380m

Distribution

Global: China, Europe (throughout), India, Kazakhstan, Kyrgyzstan, Nepal, Pakistan, Russia, Tajikistan, Uzbekistan

South Asia: India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [India < 20,000; Nepal < 20,000; Pakistan < 20,000]

Area of Occupancy: > 2,000 sq km [India < 2,000; Nepal < 2,000; Pakistan < 2,000]

Locations/subpopulations: 5/2, Fragmented

Habitat status: Unknown, human induced habitat loss and fragmentation cannot be overruled

Threats

Threats not known for this species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, museum specimen; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Data Deficient

Rationale: Known only from a location, but needs verification.

Pakistan: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

Outside South Asia, this taxon is widespread in its range

Sources

Chakraborty *et al.*, 2004; Roberts, 1997; Shrestha, 1997

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants.

Recent Field Studies

None

Locations from where *Sorex minutus* Linnaeus, 1766 is known in India, Nepal and Pakistan



Distribution of *Sorex minutus* Linnaeus, 1766 in South Asia (India, Nepal and Pakistan) from literature and field studies

Distribution in Lat. Long. Habitat Notes / Sources
South Asia

INDIA

Jammu and Kashmir

Gilgit - - - This taxon may very well occur in this region or the nearby districts in disputed Kashmir where research on small mammals has not been done since long (S. Chakraborty, C. Srinivasulu & T.P. Bhattacharyya, pers. comm.)

NEPAL

Dhoorpatan - - - Shrestha (1997)

PAKISTAN

Hazara
Kaghan Valley 34°47' 73°32' Temp. F. Roberts (1997)
Nai Nallah - - - Roberts (1997)
Nowboog Valley - - - Roberts (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Sorex planiceps* Miller, 1911**

LEAST CONCERN

Synonyms: None

Order: Soricomorpha

Family: Soricidae

Common names: English: Kashmir Shrew

Taxonomic remarks: Ellerman and Morrison-Scott (1951) treated it under *Sorex minutus* Linnaeus, 1766, while Doglov and Hoffman (1977) and Hoffman (1987) listed it as a subspecies of *Sorex thibetanus* Kastschenko, 1905, also followed by Corbet and Hill (1992). Hutterer (1979) retained it as a distinct species from either *Sorex minutus* Linnaeus, 1766 or *Sorex thibetanus* Kastschenko, 1905 (now considered a *nomen dubium*) based on larger skull measurements, followed by Hutterer (1993) and IUCN (1995).

Habit: Nocturnal

Habitat: Temperate forest

Niche: Cold and alpine tundra with substantial hot summers, alpine grasslands and coniferous forests

Elevation: 2,280-3,970m

Distribution

Global: Endemic to South Asia

South Asia: India, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Pakistan > 20,000]

Area of Occupancy: 501-2,000 sq km [India < 2,000; Pakistan < 500]

Locations/subpopulations: 9/2, Fragmented

Habitat status: Quantitative and qualitative decline in habitat condition due to human induced changes through grazing pressure in alpine meadows

Threats

Threats include natural predators and restricted range distribution

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, literature, informal sightings; observed, inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN**

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Pakistan: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey studies, taxonomic research

Management: Habitat management, monitoring, public awareness

Captive stocks: None

Comments

Not sure if it is found in areas other than surveyed areas. Area of occupancy within the localities is not known. At the moment the species is assessed as Least Concern on the basis of extent of occurrence but the assessors feel that a detailed survey is required to ascertain the habitat condition and the actual trend of population in the region of its occurrence

Sources

Chakraborty *et al.*, 2004; Roberts, 1997; Woods *et al.*, 1997

Compilers

S. Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants.

Recent Field Studies

India/Pakistan

C. Woods, A.A. Khan and R.A. Rajput, Deosai Plains, Baltistan, Gilgit, 1995-1998, Biodiversity and Conservation measures of Deosai Plateau

A.A. Khan and V. Zakrya, Deosai Plains, Baltistan, Gilgit, 1995, Management Plan for Deosai Plateau

Locations from where *Sorex planiceps* Miller, 1911 is known in India and Pakistan



Distribution of *Sorex planiceps* Miller, 1911 (Endemic to India and Pakistan) from literature and recent field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

Jammu and Kashmir

Gilgit
Deosai Plains - - Temp. F. Woods *et al.* (1997); localities in disputed Kashmir

Muzaffarabad
Neelam & Gurez Valley - - Temp. F. Roberts (1997)

PAKISTAN

Hazara
Besal 35°03' 73°56' Temp. F. Roberts (1997)
Kaghan Valley 34°47' 73°32' Temp. F. Roberts (1997)
Nai Nallah - - Roberts (1997)
Nowboog Valley - - Roberts (1997)

Manshera
Gittidas - - Temp. F. Roberts (1997); in Kaghan Valley area (c. 34°25' N and 73°17' E)

Manshera - - Temp. F. Roberts (1997); in Kaghan Valley area (c. 34°25' N and 73°17' E)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Soriculus caudatus* (Horsfield, 1851)**

Synonyms: *Sorex caudatus* Horsfield, 1851; *Episoriculus caudatus* (Horsfield, 1851); *Sorex gracilicauda* Anderson, 1877

Order: Soricomorpha

Family: Soricidae

Common names: English: Hodgson's Brown-toothed Shrew

Taxonomic remarks: This species belongs to subgenus *Episoriculus* Ellerman and Morrison-Scott, 1951. Van Valen (1967) and Repenning (1967) treated this taxon as *Episoriculus caudatus* (Horsfield, 1851)

Habit: Fossorial

Habitat: Temperate forest

Niche: Montane coniferous and alpine forests. Also inhabits rhododendron forest and alpine meadows

Elevation: 1,800-3,600m

Distribution

Global: China, India, Myanmar, Nepal

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000]

Area of Occupancy: > 2000 sq km [India > 2,000; Nepal > 2,000]

Locations/subpopulations: 10/5, Fragmented

Habitat status: Unknown. Quantitative and qualitative habitat loss cannot be overruled

Threats

Threats not known for the species or the habitat where it occurs

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, museum studies; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Nepal: Central Nepal: Lang Tang NP, Shivpuri NP **Eastern**

Nepal: Makalu Barun NP **Mid Western Nepal:** Rara NP

Western Nepal: Annapurna CA

Recommendations

Research: Survey, taxonomic research

Management: Monitoring, habitat management

Captive stocks: None

LEAST CONCERN in South Asia

Comments

Outside South Asia, this taxon is widespread in its range. Widespread in South Asia and is recorded in many Protected Areas in Nepal

Sources

Chakraborty *et al.*, 2004; Shrestha, 1997

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants

Recent Field Studies

None

Locations from where *Soriculus caudatus* (Horsfield, 1851) is known in India and Nepal



Distribution of *Soriculus caudatus* (Horsfield, 1851) in South Asia (India and Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Sikkim				
North Sikkim				Temp. F. BNHS Mammal Survey Collection Records
Chungthang				Temp. F. BNHS Mammal Survey Collection Records
Lachen	27°44'	88°33'		
Uttaranchal				
Dhakari	-	-	-	BNHS Mammal Survey Collection Records
West Bengal				
Darjiling				
Ghoombhanjag	27°01'	88°16'	Mon. St. F.	BNHS Mammal Survey Collection Records
NEPAL				
Central Nepal				
Apoon Sotidanda	28°00'	84°50'		Temp. F. BNHS Mammal Survey Collection Records
Lang Tang NP	28°16'	85°37'		Temp. F. Shrestha (1997)
Shivapuri	27°48'	85°22'		Temp. F. Shrestha (1997)
Eastern Nepal				
Makalu Barun NP	27°55'	87°08'		Temp. F. Shrestha (1997)
Mid Western Nepal				
Rara NP	29°34'	82°04'	Mon. St. F.	Shrestha (1997)
Western Nepal				
Annapurna NP	28°35'	83°57'		Temp. F. Shrestha (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Soriculus leucops* (Hodgson, 1855)**

LEAST CONCERN in South Asia

Synonyms: *Sorex leucops* Hodgson, 1855; *Episoriculus leucops* (Hodgson, 1855); *Sorex nivicola* (*nom. nud.*) Gray, 1863; *Sorex minor* Dobson, 1890; *Sorex bailey* Thomas, 1914; *Soriculus caudatus bailey* (Thomas, 1914); *Soriculus gruberi* Weigel, 1969

Order: Soricomorpha

Family: Soricidae

Common names: English: Indian Long-tailed Shrew

Taxonomic remarks: This species belongs to subgenus *Episoriculus* Ellerman and Morrison-Scott, 1951. Van Valen (1967) and Repenning (1967) treated this taxon as *Episoriculus leucops* (Hodgson, 1855). Sometimes the names *baileyi* and *gruberi* are considered valid species (IUCN, 1995). However, according to Corbet and Hill (1992) the forms representing *Sorex baileyi* Thomas, 1914 are confused with *Soriculus macrurus* Blanford, 1888. Hutterer (1993) includes *Sorex baileyi* as subspecies of *Soriculus leucops* (Hodgson, 1855) following Hoffman (1986)

Habit: Nocturnal, terrestrial

Habitat: Temperate forests and subtropical evergreen forests

Niche: Evergreen broad leaved forests at lower temperate zone

Elevation: Up to 2,900m

Distribution

Global: China, India, Myanmar, Nepal, Vietnam

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000]

Area of Occupancy: > 2,000 sq km [India > 2,000; Nepal > 2,000]

Locations/subpopulations: 7/5, Fragmented

Habitat status: Stable in area. Other details not known

Threats

Unknown

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, museum study; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN** in South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Nepal: *Central Nepal:* Lang Tang NP; *Eastern Nepal:* Makalu Barun NP; *Mid Western Nepal:* Rara NP; *Western Nepal:* Annapurna CA

Recommendations

Research: Survey

Management: Habitat management, monitoring

Captive stocks: None

Comments

Outside South Asia, this taxon is widespread in its range

Sources

Chakraborty *et al.*, 2004; Shrestha, 1997

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants.

Recent Field Studies

None

Locations from where *Soriculus leucops* (Hodgson, 1855) is known in India and Nepal



Distribution of *Soriculus leucops* (Hodgson, 1855) in South Asia (India and Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Sikkim				
North Sikkim	27°44'	88°33'	Temp.	F. BNHS Mammal Survey Collection
Lachen				Records
NEPAL				
Central Nepal				
Lang Tang NP	28°16'	85°37'	Temp.	F. Shrestha (1997)
Sindhu Paichok	27°455'	85°45'	Temp.	F. Shrestha (1997)
Solukhumbu	27°45'	86°45'	Temp.	F. Shrestha (1997)
Eastern Nepal				
Makalu Barun NP	27°55'	87°08'	Temp.	F. Shrestha (1997)
Mid Western Nepal				
Rara NP	29°34'	82°04'	Mon.	Shrestha (1997)
			St. F.	
Western Nepal				
Annapurna CA	28°35'	83°57'	Temp.	F. Shrestha (1997)

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Soriculus macrurus* Blanford, 1888**

Synonyms: *Sorex macrurus* (*nom. nud.*) Hodgson, 1863;
Episoriculus macrurus (Blanford, 1888)

Order: Soricomorpha

Family: Soricidae

Common names: English: Arboreal Brown-toothed Shrew

Taxonomic remarks: This species belongs to subgenus *Episoriculus* Ellerman and Morrison-Scott, 1951. Ellerman and Morrison-Scott (1951) synonymised it with *Soriculus leucops* (Hodgson, 1855) following Osgood (1932). Van Valen (1967) and Repenning (1967) treated this taxon as *Episoriculus macrurus* (Blanford, 1888). Corbet and Hill (1992), Hutterer (1993), and IUCN (1995) treat it as distinct species following Hoffman (1986).

Habit: Nocturnal, terrestrial

Habitat: Temperate forest

Niche: Wet habitats with dwarf bamboo, scrub and grasses in temperate zone

Elevation: ~ 1,700m

Distribution

Global: China, India, Myanmar, Nepal, Vietnam

South Asia: India, Nepal

Extent of Occurrence: > 20,000 sq km [India < 5,000; Nepal > 20,000]

Area of Occupancy: 500-2,000 sq km [India < 500; Nepal unknown]

Locations/subpopulations: 1/1

Habitat status: Declining human induced habitat loss and fragmentation

Threats

Habitat loss, degradation, fragmentation

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, indirect information; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **VULNERABLE** ↓ **NEAR THREATENED in South Asia B2ab(iii); D2**

Rationale: Widespread in its range marginally occurring in South Asia

National Status (IUCN Ver. 3.0)

India: Endangered ↓ **Vulnerable B1ab(iii)+2ab(iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in India.

However, since the species occurs in the neighbouring countries with chances of migration/recolonisation, it is downgraded by one category.

Nepal: Data Deficient

Rationale: No exact location of its occurrence is known.

Wildlife Legislation: None

CITES: Not listed

NEAR THREATENED in South Asia

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

Outside South Asia, this taxon is widespread in its range. In South Asia, no localities from where the species has been sighted or collected in recent past is known. Number of locations and subpopulations could be more; this species has been reported to occur in South Asia from Central Nepal to Sikkim by Hutterer (1993), IUCN (1995), and Chakraborty *et al.* (2004)

Sources

Blanford, 1888; Chakraborty *et al.*, 2004; Hutterer, 1993; IUCN, 1995

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants.

Recent Field Studies

None

Locations from where *Soriculus macrurus* Blanford, 1888 is known in India



Distribution of *Soriculus macrurus* Blanford, 1888 in South Asia (India) from literature and field studies

Distribution in
South Asia

Lat. Long. Habitat Notes / Sources

INDIA

West Bengal

Darjiling
Darjiling

26°45' 88°15' Mon. Blanford (1888)
St. F.

NEPAL

? location

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Soriculus nigriscens* (Gray, 1842)**

Synonyms: *Corsira nigriscens* Gray, 1842; *Sorex aterrimus* (*nom. nud.*) Blyth, 1842; *Sorex sikimensis* (*nom. nud.*) Hodgson, 1849

Order: Soricomorpha

Family: Soricidae

Common names: English: Sikkim Large-clawed Shrew

Taxonomic remarks: This species belongs to subgenus *Soriculus* Blyth, 1854. Myanmar specimens belong to *Soriculus nigriscens radulus* Thomas, 1922

Habitat: Semi-fossorial feeding on insects and earthworms obtained from leaf litters

Habitat: Temperate forest

Niche: Broad leaf and coniferous forests and also naked rocky areas

Elevation: 1,500-4,300m

Distribution

Global: Bhutan, China, India, Nepal

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan < 20,000; India > 20,000; Nepal unknown]

Area of Occupancy: > 2,000 sq km [Bhutan < 2,000; India > 2,000; Nepal unknown]

Locations/subpopulations: 8/4, Fragmented

Habitat status: Quantitative and qualitative decline in habitat condition at the rate of < 20% during the last 10 years and a similar rate predicted in future due to habitat loss with human settlements and agricultural expansion

Threats

Threats include habitat loss due to agriculture expansion and human settlements

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum, informal sightings, literature; inferred; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in South Asia

Rationale: Widespread in its range

National Status (IUCN Ver. 3.0)

Bhutan: VULNERABLE ↓ NEAR THREATENED

B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in Bhutan.

However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

India: Least Concern

Nepal: Data Deficient

Rationale: The occurrence near the Indo-Nepal border needs confirmation

LEAST CONCERN in South Asia

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

None

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

Not sure if it is found in areas other than surveyed areas

Sources

Chakraborty *et al.*, 2004

Compilers

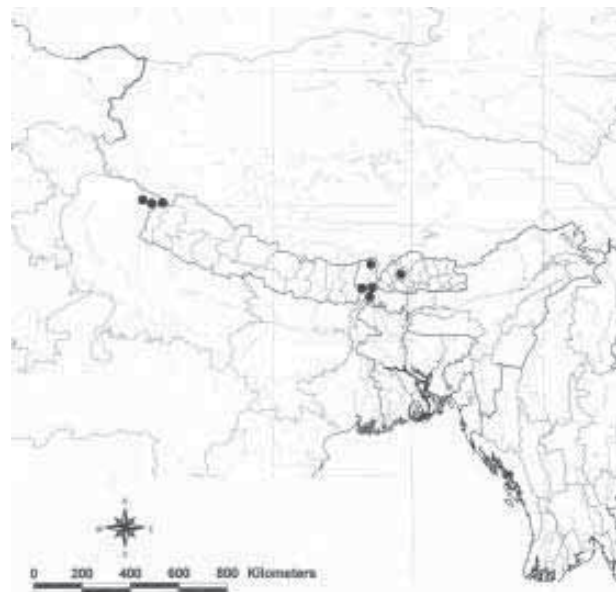
S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of the participants.

Recent Field Studies

None

Locations from where *Soriculus nigriscens* (Gray, 1842) is known in Bhutan, India and Nepal



Distribution of *Soriculus nigriscens* (Gray, 1842) in South Asia (Bhutan, India and Nepal) from literature and field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
BHUTAN				
Chakademi	-	-	Temp. F.	Zoological Survey of India (ZSI) Collection; in 1973, c. 2,166m
INDIA				
Sikkim				
North Sikkim	27°44'	88°33'	Temp. F.	ZSI Mammal Survey Collection
Lachen			Records	
Uttaranchal				
Bageshwar	30°07'	79°57'	Mon.	BNHS Mammal Survey Collection
Khatti			St. F.	Records
Phurkai	-	-	Mon.	BNHS Mammal Survey Collection
Bouzini	-	-	St. F.	Records
			-	BNHS Mammal Survey Collection
				This location could be in Nepal, needs confirmation (C. Srinivasulu, pers. comm.)
NEPAL				
Far Western				
Nepal				
? Bouzini	-	-	-	See above comments

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Suncus dayi* (Dobson, 1888)**

ENDANGERED

Synonyms: *Crocidura dayi* Dobson, 1888

Order: Soricomorpha

Family: Soricidae

Common names: English: Day's Shrew

Taxonomic remarks: The type specimen has no records on measurement of the species

Habit: Nocturnal, active from dusk onwards

Habitat: Tropical montane grasslands

Niche: Montane high altitude grasslands and grassland sholas

Elevation: 1,500-2,500m

Distribution

Global: Endemic to India

Extent of Occurrence: 101-5,000 sq km [Estimated 1,300 sq km, based on inference of areas available between locations currently known to have the species]

Area of Occupancy: 11-500 sq km [All recent specimens have been from montane forests only the type-specimen has been from the plains]

Locations/subpopulations: 4/2, Fragmented

Habitat status: Quantitative and qualitative habitat loss at the rate of < 20% in the last 10 years due to habitat loss

Threats

Habitat loss due to conversion of grassland sholas for eucalyptus and tea plantations and its restricted distribution range

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, literature, museum study; observed; inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Kerala: Eravikulam NP

Tamil Nadu: Mukurthi NP

Recommendations

Research: Survey, taxonomic research, life history, limiting factor

Management: Monitoring habitat management, monitoring, captive breeding

Captive stocks: None

Comments

This species inhabits small areas and much of its known and projected extent of occurrence is under threat from habitat conversion for plantations. Two subpopulations, as the localities are separated, are North and South of Palghat gap. All recent specimens have been from montane forests only the type-specimen has been from the plains. The reported areas of upper Bhavani and Eravikulam have been protected for the past 20 years. Hence the surrounding area of the parks itself may be subject to some changes and disturbance but to a limited extent. Nothing is known about this species except for five individuals that had been collected. This species needs more research on distribution

Sources

Dobson, 1888; Chakraborty *et al.*, 2004; Pradhan, 2002; Pradhan and Kurup, 2001

Compilers

S. Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, W.L.D.P.T.S. de A. Goonatilake, P.O. Nameer, B.A. Daniel

Reviewers: M.S. Pradhan, S. Chakraborty, P.O. Nameer, C. Srinivasulu

Recent Field Studies

M.S. Pradhan and G.U. Kurup, Nilgiri Biosphere Reserve, Tamil Nadu, late 1980's, Faunal inventorisation of Nilgiri Biosphere Reserve

M.S. Pradhan, Eravikulam National Park, Kerala, 1994-1996, Faunal inventorisation of Eravikulam National Park

Locations from where *Suncus dayi* (Dobson, 1888) is known in India



Distribution of *Suncus dayi* (Dobson, 1888) (Endemic to India) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
INDIA				
Kerala				
Iddukki	-	-	Trop. F.	Pradhan (2002); in high altitude grassland patches
Eravikulam NP				
Thrissur				
Thrissur	10°31'	76°13'	Trop. F.	Dobson (1888); This location has been quoted as 'Type Locality', which could not be true collection locality as the taxon is montane and is subsequently known and collected only from montane locations. Inclusion of this location as valid locality needs to be taken cautiously (S. Chakraborty, pers. comm.)
Tamil Nadu				
Dindigul & Madurai				
Palni Hills	10°12'	77°30'	Trop. F.	Pradhan (2002), Pradhan and Kurup (2001); in high altitude grassland patches
Nilgiris				
Upper Bhavani	11°27'	77°41'	Trop. F.	Karthik Shankar (pers. comm.); in high altitude grassland patches

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Suncus etruscus* (Savi, 1822)**

LEAST CONCERN in South Asia

Synonyms: *Sorex etruscus* Savi, 1822; *Sorex perrotteti* Duvernoy, 1842; *Sorex atratus* Blyth, 1855; *Sorex hodgsoni* Blyth, 1855; *Sorex micronyx* Blyth, 1855; *Sorex nudipes* Blyth, 1855; *Pachyura assamensis* Anderson, 1873; *Crocidura (Pachyura) nilagirica* Anderson, 1877; *Crocidura (Pachyura) nitidofulva* Anderson, 1877; *Crocidura (Pachyura) pygmaeoides* Anderson, 1877; *Crocidura (Pachyura) travancorensis* Anderson, 1877; *Podihik kura* Deraniyagala, 1958

Order: Soricomorpha

Family: Soricidae

Common names: English: Savi's Pygmy Shrew; Nuwari:

Lukucha

Taxonomic remarks: Ellerman and Morrison-Scott (1951) listed *Suncus fellowes-gordoni* Phillips, 1932 under this taxon as a subspecies, while Corbet and Hill (1991, 1992) synonymised it with this taxon. However, Hutterer (1993) and IUCN (1995) treated it as distinct species. Eisenberg and McKay (1970) did not treat *Podihik kura* Deraniyagala, 1958 being distinct from *Suncus etruscus* (Savi, 1822), as followed by Hutterer (1993)

Habit: Nocturnal, terrestrial, ruderal

Habitat: Temperate and Tropical forests

Niche: Burrows in forests and near human dwellings

Elevation: Up to 5,000m

Distribution

Global: Afghanistan, Algeria, Bhutan, China, Egypt, Europe (Southern), India, Iraq, Morocco, Myanmar, Nepal, Pakistan, Saudi Arabia, Sri Lanka, Thailand, Tunisia, Turkmenistan

South Asia: Bhutan, India, Nepal, Pakistan and Sri Lanka

Extent of Occurrence: > 20,000 sq km [Bhutan unknown; India > 20,000; Nepal > 20,000; Pakistan > 20,000; Sri Lanka < 5,000]

Area of Occupancy: > 2,001 sq km [Bhutan unknown; India > 2,000; Nepal > 2,000; Pakistan > 2,000; Sri Lanka < 500]

Locations/subpopulations: 17/4, Fragmented

Habitat status: Stable. In some regions beneficial habitat changes are occurring due to expansion of human settlements

Threats

Habitat loss due to encroachment for agriculture, small-scale logging, clear cutting, forest fires, poisoning (indirect), pest control activities, cattle grazing, natural predators, diseases

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Literature, monitoring, informal sightings, literature; inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in

South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver 3.0)

Bhutan: Data Deficient

Rationale: Exact location is not known.

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Sri Lanka: Endangered B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality. Since the population is isolated physically, it is assessed separately from the mainland population and the status is unchanged.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Kawal WS

Kerala: Eravikulam NP

Madhya Pradesh: Kanha NP

Recommendations

Research: Survey studies, taxonomy

Management: Monitoring

Captive stocks: None

Comments

This species is much smaller than the highland *Suncus fellowesgordoni* and needs further taxonomic studies to clarify identification. Further studies to establish the existence of this species in Sri Lanka is needed (W.L.D.P.T.S. de A. Goonatilake, pers. comm.)

Sources

Chakraborty *et al.*, 2004; Phillips, 1980; Roberts, 1997; Shrestha, 1997; BIS of species by: C. Srinivasulu and Bhargavi Srinivasulu, G. Jathar, and W.L.D.P.T.S. de A. Goonatilake; Deraniyagala, 1958

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: W.L.D.P.T.S. de A. Goonatilake, C. Srinivasulu

Recent Field Studies

Jathar, G.A., Toranmal Reserve Forest, Maharashtra, 2001-2003, Ecological studies of the forest owl
Srinivasulu, C., Kawal Wildlife Sanctuary, Adilabad district, Andhra Pradesh, 1996-2000, Mammals of Kawal Wildlife Sanctuary

Locations from where *Suncus etruscus* (Savi, 1822) is known in India, Nepal, Pakistan and Sri Lanka



Distribution of *Suncus etruscus* (Savi, 1822) in South Asia (India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
INDIA				
Andhra Pradesh				
Adilabad	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near human dwellings near the Reservoir, just outside Kawal WLS, south east of Utnoor (19°22' N & 78°46' E)
Kadamb	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropicaldry deciduous teak mixed forest with bamboo in Kawal WLS, south of Utnoor (19°22' N & 78°46' E)
Rampur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near human dwellings near the Reservoir, just outside Kawal WLS, south east of Utnoor (19°22' N & 78°46' E)
Karimnagar	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near temple, south west of Sironcha (18°50' N & 79°58' E), Maharashtra
Kaleshwaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; Tropicaldry deciduous teak mixed forest, south west of Sironcha (18°50' N & 79°58' E), Maharashtra
Mahadevpur RF	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near human dwellings
Ranga Reddy	17°37'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS; near human dwellings
Medchal	-	-	Trop. F.	Pradhan & Kurup (2001), Nilgiri BR part of Kodagu, also from Bellary
Karnataka				
Kodagu	-	-	Trop. F.	Pradhan & Kurup (2001), Nilgiri BR part of Kodagu, also from Bellary
? location	-	-	Trop. F.	Pradhan (2002), in Meenthothi area
Kerala				
Idukki	-	-	Trop. F.	Pradhan (2002), in Meenthothi area
Eravikulam NP	-	-	Trop. F.	Pradhan (2002), in Meenthothi area
Madhya Pradesh				
Balaghat & Mandla	-	-	Trop. F.	Ghose & Bhattacharyya (1995)
Kanha NP	-	-	Trop. F.	Ghose & Bhattacharyya (1995)
Maharashtra				
Nandurbar	21°47'	74°28'	Trop. F.	G. Jathar, BIS; 100m from stream in open forest interspersed with scrub, alt. 400-500m
Toranmal RF	-	-	Trop. F.	G. Jathar, BIS; 100m from stream in open forest interspersed with scrub, alt. 400-500m
Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Meghalaya				
E. Khasi Hills	-	-	Trop. F.	Das <i>et al.</i> (1995); also in Jiantia Hills
Cherrapunji	-	-	Trop. F.	Das <i>et al.</i> (1995); also in Jiantia Hills
NEPAL				
Central Nepal				
Kathmandu	27°45'	85°25'	Trop. F.	T.K. Shreshta, BIS; near human dwellings
Far Western Nepal				
Baitadi	29°30'	80°35'	Temp. F.	T.K. Shreshta, BIS
Western Nepal				
Pokhara	28°14'	83°59'	Trop. F.	T.K. Shreshta, BIS
PAKISTAN				
Punjab				
Sialkot	32°30'	74°32'	Trop. F.	Roberts (1997)
Sialkot	-	-	Trop. F.	Roberts (1997)
Sind				
Hub River Valley	-	-	Trop. F.	Roberts (1997)
Malir	-	-	Trop. F.	Roberts (1997)
Malir	-	-	Trop. F.	Roberts (1997)
Thatta	24°08'	67°53'	Trop. F.	Roberts (1997)
Shahabandar	-	-	Trop. F.	Roberts (1997)
North West Frontier Province				
Chousadda	-	-	Trop. F.	Roberts (1997)
Malakand	-	-	Trop. F.	Roberts (1997); near river bank
Amandara	34°37'	71°59'	Trop. F.	Roberts (1997); near river bank
SRI LANKA				
North Central Province				
Polonnaruwa	-	-	Trop. F.	Deraniyagala (1958); W.L.D.P.T.S. de A. Goonatilake, BIS
Mederigiriya	-	-	Trop. F.	Deraniyagala (1958); W.L.D.P.T.S. de A. Goonatilake, BIS
Western Province				
Puttalam	-	-	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
Colombo Road	-	-	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
BHUTAN				
? location	-	-	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Suncus fellowesgordoni* Phillips, 1932**

ENDANGERED

Synonyms: *Suncus etruscus fellowes-gordoni* (Phillips, 1932)

Order: Soricomorpha

Family: Soricidae

Common names: English: Ceylon Pygmy Shrew; Sinhalese:

Podi Hik-miya, Podi Kunu-miya; Tamil: *Mungi'elli-kutti, Sinna Mungi'elli, Sundelli*

Taxonomic remarks: Ellerman and Morrison-Scott (1951) treated this taxon as a subspecies of *Suncus etruscus* (Savi, 1822). Corbet (1978) and Corbet and Hill (1991, 1992) synonymised *Suncus fellowes-gordoni* Phillips, 1932 and *Podihik kura* Deraniyagala, 1958 with *Suncus etruscus* (Savi, 1832). Hutterer (1993) opines that the *Podihik kura* is more similar to *Suncus etruscus* (Savi, 1822) than to *Suncus fellowes-gordoni* Phillips, 1932. Hutterer (1993) and IUCN (1995) treated *Suncus fellowes-gordoni* Phillips, 1932 as a distinct species

Habit: Nocturnal, terrestrial

Habitat: Tropical forest

Niche: Montane forests and wet patana grasslands

Elevation: 1,100-2,500m

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 101-5,001 sq km [Estimated 1,900 sq km, based on areas available between locations currently known to have the species]

Area of Occupancy: 11-500 sq km [Estimated 450 sq km, based on the approximate estimate of areas with likely habitats for the species including the currently known areas]

Locations/subpopulations: 7/2, Fragmented

Habitat status: Quantitative and qualitative decline in habitat in future predicted at the rate of < 20% in next 10 years due to deforestation for tea plantations, forest fires and defragmentation

Threats

Habitat loss due to expansion of tea plantations, forest fires, pest control activities

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Informal sightings, literature; observed

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Sri Lanka

Central Province: Knuckles FR

Recommendations

Research: Survey studies, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

Only two recent records in 2003 by W.L.D.P.T.S. de A. Goonatilake, rest of the localities are historic

Sources

Chakraborty *et al.*, 2004; Phillips, 1935; BIS on species by: W.L.D.P.T.S. de A. Goonatilake

Compilers

W.L.D.P.T.S. de A. Goonatilake, C. Srinivasulu, Wes Sechrest, B.A. Daniel

Reviewers: W.L.D.P.T.S. de A. Goonatilake

Recent Field Studies

Goonatilake, W.L.D.P.T.S. de A., Mautrata, Knuckles Forest Reserve, 2003, Rapid assessment of small mammals

Locations from where *Suncus fellowesgordoni* Phillips, 1932 is known in Sri Lanka



Distribution of *Suncus fellowesgordoni* (Phillips, 1932) (Endemic to Sri Lanka) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
SRI LANKA				
Central Province				
Kandy	7°22'	80°50'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; In Knuckles Forest Range, montane forest, < 10 sq km. Threats include forest clearing and fire
Corbets Gap				
Matale				
Gammaduwa	7°34'	80°42'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Madulkelle	7°24'	80°44'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Matale	7°31'	80°38'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Talawakele	6°56'	80°39'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Nuwara Eliya				
Kurudu Ella Falls	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; Highland grassland, < 10 sq km. Threats include clearing for tea plantations
Ohiya	6°49'	80°50'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Suncus montanus* (Kelaart, 1850)**

ENDANGERED

Synonyms: *Sorex ferugeneus* Kelaart, 1850; *Sorex feruginea* Kelaart, 1850; *Sorex montanus* Kelaart, 1850; *Suncus murinus montanus* (Kelaart, 1850)?; *Sorex niger* Horsfield, 1851; *Suncus niger malabaricus* Lindsay, 1929

Order: Soricomorpha

Family: Soricidae

Common names: English: Hill Shrew/Montane Shrew

Taxonomic remarks: Lindsay (1929) described darker forms akin to this species from southern India as *Suncus niger malabaricus* that has been considered as possible subspecies of the *Suncus murinus* (Linnaeus, 1766) by Ellerman and Morrison-Scott (1951). However, Corbet (1992) proposed it to be a valid subspecies of *Suncus montanus* (Kelaart, 1850) and accepted by Corbet and Hill (1992), Hutterer (1993) and IUCN (1995).

Habit: Nocturnal, crepuscular, semi fossorial

Habitat: Tropical forest

Niche: Montane semi evergreen forest, montane rain forest patches and wet patana grasslands

Elevation: 900-2,400m

Distribution

Global: Endemic to South Asia

South Asia: India, Sri Lanka

Extent of Occurrence: > 20,000 sq km [India > 20,000; Sri Lanka < 20,000]

Area of Occupancy: 11-500 sq km [India < 500; Sri Lanka < 500]

Locations/subpopulations: 18/3, Fragmented

Habitat status: Quantitative and qualitative decline in habitat condition at the rate of < 20% during the last 10 years and a similar rate predicted in future due to habitat loss resulting from human settlements, deforestation and clearing for farming

Threats

Threats include habitat loss due to agriculture expanse, pesticide use and forest fires

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum study, literature; observed, inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED B2ab(ii,iii)**

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

National Status (IUCN Ver. 3.1)

India: Endangered B2ab(ii,iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Sri Lanka: Endangered B2ab(ii,iii)

Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Karnataka: Biligirirangan Swamy Temple WS, Nagarhole NP

Kerala: Periyar TR

Tamil Nadu: Mudumalai WS

Sri Lanka

Central Province: Horton Plains NP; Knuckles FR

Recommendations

Research: Survey studies, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

Taxonomic clarification regarding *Suncus niger malabaricus* Lindsay, 1929 and its relationship with *Suncus montanus* (Kelaart, 1850) needs to be addressed (C. Srinivasulu, pers. comm.).

Sources

Chakraborty *et al.*, 2004; Lindsay, 1929; Phillips, 1935; Meena Venkataraman, 1999; BIS on species by: W.L.D.P.T.S. de A. Goonatilake

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, W.L.D.P.T.S. de A. Goonatilake, B.A. Daniel

Reviewers: W.L.D.P.T.S. de A. Goonatilake, C. Srinivasulu.

Recent Field Studies

India

Nameer, P.O., Periyar Tiger Reserve, Kerala, 2001, General survey

Meena Venkataraman, Mudumalai WLS, Tamil Nadu, 1997, Distribution of small mammals

Sri Lanka

Ratnanyake and Senaratne Horton Plains National Park, Sabargamuwa, 1994

Nalinda, Horton Plains National Park, Sabargamuwa Province, 1990, General survey March for Conservation measures, University of Colombo, Knuckles Forest Reserve, 1980, General surveys

Distribution of *Suncus montanus* (Kelaart, 1850) (Endemic to India and Sri Lanka) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
INDIA					SRI LANKA				
Karnataka					Central Province				
Kokkal	-	-	-	BNHS Museum records, locality could not be placed	Kandy	7°22'	80°50'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in montane forests
<i>Chamrajnagar</i>					Corbets Gap	7°13'	80°40'	Trop. F.	Phillips (1935)
Belgiritangan Hills	11°54'	77°14'	Trop. F.	BNHS Museum records	Galaha				
Kodagu					Matale	7°34'	80°42'	Trop. F.	Phillips (1935)
Virajpet	12°12'	75°48'	Trop. F.	Lindsay (1929)	Gammaduwa	7°24'	79°59'	Trop. F.	Phillips (1935)
<i>Kodagu & Mysore</i>					Udugama				
Nagarhole	12°01'	76°09'	Trop. F.	BNHS Museum records	Nuwara Eliya	7°30'	80°46'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Kerala					Pidurutalagala				
Kotengaddy Estate	-	-	-	BNHS Museum records, locality could not be placed	Sabargamuwa				
<i>Idukki</i>					Province				
Eravikulam NP	-	-	Trop. F.	Pradhan (2002); in high altitude grassland patches	Kegalle	7°05'	80°29'	Trop. F.	Phillips (1935)
Mullakudi	-	-	Trop. F.	P.O. Nameer (pers comm.) in 2001; in evergreen forest patch, alt. 1,200m; in Periyar TR (c. 9°32' N & 77°12' E)	Kitulgala				
Tamil Nadu									
Shenbagnoor	-	-	-	BNHS Museum records, locality could not be placed					
Dindigul									
Kodaikanal	10°14'	77°29'	Trop. F.	BNHS Museum records					
Nilgiris									
Kothagiri Estate	11°26'	76°53'	Trop. F.	BNHS Museum records					
Mudumalai WS	11°37'	76°34'	Trop. F.	Meena Venkataraman (1999)					
Ooty	11°24'	76°42'	Trop. F.	BNHS Museum records					

Locations from where *Suncus montanus* (Kelaart, 1850) is known in India and Sri Lanka



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon. G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Suncus murinus* (Linnaeus, 1766)**

LEAST CONCERN in South Asia

Synonyms: *Sorex murinus* Linnaeus, 1766; *Sorex indicus* Geoffroy, l., 1811; *Sorex sonerratii* Geoffroy, l., 1827; *Sorex giganteus* Geoffroy, l., 1831; *Sorex serpentarius* Geoffroy, l., 1831; *Sorex nemorivagus* Hodgson, 1845; *Sorex soccatus* Hodgson, 1845; *Suncus murinus soccatus* (Hodgson, 1845); *Sorex griffithi* Horsfield, 1851; *Suncus murinus griffithi* (Horsfield, 1851); *Sorex kandianus* Kelaart, 1852; *Suncus murinus kandianus* (Kelaart, 1852); *Sorex heterodon* Blyth, 1855; *Sorex kelaarti* Blyth, 1855; *Sorex saturator* Hodgson, 1855; *Suncus murinus saturator* (Hodgson, 1855); *Sorex tytleri* Blyth, 1859; *Suncus murinus tytleri* (Blyth, 1859) *Sorex viridescens* Blyth, 1859 *Crocidura (Pachyura) ceylanica* Peters, 1870; *Crocidura (Pachyura) media* Peters, 1870 *Crocidura (Pachyura) waldemarii* Peters, 1870; *Crocidura (Pachyura) blanfordii* Anderson, 1877; *Suncus murinus blanfordii* (Anderson, 1877); *Crocidura (Pachyura) blythii* Anderson, 1877; *Crocidura (Pachyura) fulvocinerea* Anderson, 1877; *Suncus murinus fulvocinereus* (Anderson, 1877); *Crocidura (Pachyura) pealana* Anderson, 1877; *Crocidura (Pachyura) sindensis* Anderson, 1877; *Crocidura (Pachyura) rubicunda* Anderson, 1877; *Crocidura andersoni* Trouessart, 1879; *Crocidura beddomei* Anderson, 1881; *Sorex beddomei* (Anderson, 1881)

Order: Soricomorpha

Family: Soricidae

Common names: English: Grey Musk Shrew, House Shrew;

Hindi: *Chuchundar*; Tamil: *Munjuru*, Telugu: *Chunchu 'Eluka*

Taxonomic remarks: Ellerman and Morrison-Scott (1951) listed more than 15 subspecies under this taxon, including Sri Lankan forms *Suncus montanus* Kelaart, 1850 and *Suncus zeylanicus* Phillips, 1928 which are now treated as distinct species (Phillips, 1980; Corbet & Hill, 1992; Hutterer, 1993). Phillips (1980) treated *Sorex murinus kandianus* (Kelaart, 1852) as a valid subspecies from Sri Lanka. This species has been synonymised with *Suncus murinus* (Linnaeus, 1766) by Corbet and Hill (1992). According to Corbet and Hill (1992) *Suncus murinus nemorivagus* Hodgson, 1845 possibly includes *Suncus murinus soccatus* (Hodgson, 1845), *Suncus murinus griffithi* (Horsfield, 1851), *Suncus murinus saturator* (Hodgson, 1855) and *Suncus murinus tytleri* (Blyth, 1859); and *Suncus murinus viridescens* Blyth, 1859 possibly includes *Crocidura (Pachyura) blanfordii* Anderson, 1877

Habit: Nocturnal, crepuscular, semi fossorial, commensal and ruderal

Habitat: Tropical forest

Niche: Many different types including forests (tropical, subtropical, montane, scrubland, grassland, pasturelands, agriculture fields, plantations, rural gardens, urban gardens, human habitations etc

Elevation: Sea level to 3,700m

Distribution

Global: Afghanistan, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Pakistan, Sri Lanka, Taiwan, Thailand

South Asia: Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka

Extent of Occurrence: > 20,000 sq km

Area of Occupancy: > 2,001 sq km

Locations/subpopulations: Many/many, Fragmented

Habitat status: Quantitative and qualitative increment in habitat condition due to creation of suitable microhabitats

resulting from expansion of human settlements

Threats

In some areas, threats include habitat loss due to agriculture expanse, pesticide use, forest fires, natural predators

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, museum study, informal sightings, literature; observed, inferred

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) LEAST CONCERN in

South Asia

Rationale: Widely distributed species. No major threats.

National Status (IUCN Ver.3.0)

Bangladesh: Least Concern

Bhutan: Data Deficient

Rationale: Exact location not known.

India: Least Concern

Nepal: Least Concern

Sri Lanka: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Andhra Pradesh: Coringa WS, Eturnagaram WS, Gundla Brahmeshwaram Metta WS, Kasu Brahmananda Reddy NP, Kawal WS, Mahaveer Harina Vanasthali NP, Manjira WS, Nagarjunasagar Srisailem TR, Nelapattu WS, Pocharam WS, Pranahita WS, Pulicat WS, Siwaram WS, Sri Venkateshwara NP

Bihar: Kaimur WS; Valmiki TR

Madhya Pradesh: Kanha NP

Maharashtra: Sanjay Gandhi NP

Rajasthan: Desert NP

West Bengal: Jaldapara WS

Pakistan

Ayyubia NP, Chumbi Surla WS, Keti Bunder (North & South) WS

Recommendations

None

Captive stocks: None

Comments

The species has been introduced to the following countries:

Bahrain, Comoros, Guam, Iraq, Madagascar, Maldives, Mauritius, Oman, Reunion, Saudi Arabia, Yemen

Sources

Chakraborty *et al.*, 2004; Kankane, 2004; Roberts, 1997; Shrestha, 1997; Bhatatacharyya & Ghosh, 2004;

Chakraborty & Agrawal, 2000; Das *et al.*, 1995; Ghose & Bhattacharyya, 1995a; Karunaratne, 1992; Philips, 1935; Pradhan, 2002; Pradhan & Kurup, 2001; Ranwella, 1995; BIS on species by: A. Visa, P.O. Nameer and M.M. Animon; C. Srinivasulu and Bhargavi Srinivasulu; G. Jathar; G. Maheswaran; Hassan *et al.*; Kausalya Shenoy; P. Neelarayanan; P. Padmanabhan; W.L.D.P.T.S. de A. Goonatilake

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, W.L.D.P.T.S. de A. Goonatilake, B.A. Daniel

Reviewers: Rest of the participants.

Recent Field Studies

Bangladesh

Sarker, S.U., Dhaka University Campus, Dhaka, 1982

India

Neelananarayanan, P., Nagapattinam district, 1993-1995, Predatory pressure of Barn owl on small mammals
Neelananarayanan, P., in and around Puttanampatti and Omandur villages, 2003, Survey of rodents and insectivores
Easa, P.S., J. Zacharias and P. Padmanabhan, Kerala state, 1993-1998, Survey of small mammals in Kerala with special reference to Western Ghats

Visu, A., P.O. Nameer and M.M. Animon, LRS Thiruvazhamkunnu, Palakkad District, Kerala, February, 2003, Diversity and abundance of rodents and insectivores in KAU campus, Palakkad and Thrissur

Maheswaran, G., Jaldapara Wildlife Sanctuary, 2002-2003, Inventorying study

Srinivasulu, C. and Bhargavi Srinivasulu, 1996 onwards, Throughout Andhra Pradesh, Status of mammals of Andhra Pradesh

Srinivasulu, C. and Bhargavi Srinivasulu, 2002 onwards, Kurnool grasslands, Ranga Reddy District, Hyderabad and Secunderbad environs, Nagarjunasagar Srisaillam Tiger Reserve, Non-Volant Small Mammals of select areas of Andhra Pradesh

Srinivasulu, C. Kasu Brahmananda Reddy National Park, 2002 onwards, Faunal inventorying of KBR National Park (in collaboration with FBS/ Zoological Survey of India, Hyderabad)

Srinivasulu, C. Nagarjunasagar Srisaillam Tiger Reserve, 1996 onwards, Biodiversity of Nalamalla Hills, Eastern Ghats

Sri Lanka

Karunaratne, Balangoda and Kinchigunae, Ratnapura district, 1992
Ranwella and Bolgoda, Kalutara district, 1995
Kambalagamuwa, Kandy district, 1992

Locations from where *Suncus murinus* (Linnaeus, 1766) is known in Bangladesh, India, Nepal, Pakistan and Sri Lanka



Distribution of *Suncus murinus* (Linnaeus, 1766) in South Asia (Bhutan, Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH									
Dhaka	24°00'	90°00'	Trop. F.	Hassan <i>et al.</i> , BIS; in human habitation	Hyderabad	17°22'	78°28'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Demira	24°29'	90°40'	Trop. F.	Hassan <i>et al.</i> , BIS; in human University habitation Campus	Kasu Brahmananda Reddy NP	17°22'	78°28'	Trop. F.	Srinivasulu <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Jahangirnagar					Karimnagar Jagtlal	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS
Savar	30°16'	90°52'	Trop. F.	Hassan <i>et al.</i> , BIS; in human habitation	Karimnagar Mahadevpur	18°30'	79°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
INDIA					Siddipet	18°43'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Andhra Pradesh					Khammam	18°06'	78°81'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Adilabad	19°30'	78°30'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kothagudem	17°33'	80°38'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Adilabad	19°02'	79°30'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Krishna Vijaywada	16°31'	80°37'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Bellampally	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Kurnool	15°53'	78°35'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chennai	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Atmakur	15°35'	78°00'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Jannaram	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nandyal	15°59'	78°29'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kotapalli	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahanandi	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Nirmal	19°06'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahubnagar	16°39'	80°08'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Uttoor	19°22'	78°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Achampet	16°46'	78°09'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Anantapur	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Jadcherla	16°30'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Amdigubba	15°07'	77°38'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Mahubnagar Mannanur	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Gooty	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Medak	17°45'	78°15'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Kadiri	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Medak	17°44'	78°16'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Chittoor	13°39'	79°25'	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Narsapur	17°37'	78°05'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Tirupati	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Sangareddy	17°50'	78°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Too pran	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Balepalli	14°28'	78°49'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nalgonda	16°42'	78°56'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Cuddapah	14°23'	80°09'	Trop. F.	Chakraborty <i>et al.</i> (2004)	Devarkonda	16°30'	79°13'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Koduru	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Nagarjunasagar Vijayapuri	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
East Godavari	16°59'	81°47'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nellore	14°08'	79°59'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Rajahmundry	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)	Gudur	15°05'	79°35'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Guntur	16°29'	79°26'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Nellore	-	-	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS
Macherla	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)					
Pullareddygudem	-	-	Trop. F.	Chakraborty <i>et al.</i> (2004)					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Eyer. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Suncus murinus* (Linnaeus, 1766) in South Asia (Bhutan, Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Nizamabad Kamareddy	18°19'	78°21'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Amreli Dhari	-	-	Trop. F.	Chakraborty & Agrawal (2000); also at Khodiyam Dam
Prakasam Bapatla	15°54'	80°28'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Banaskantha Danta	-	-	Trop. F.	Chakraborty & Agrawal (2000)
Rangareddy Medchal Vikarabad	17°37' 17°20'	78°28' 77°54'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS	Bharuch Jagadhiya	-	-	Trop. F.	Chakraborty & Agrawal (2000); also at Netrang
Srikakulam Tekkali	18°37'	84°14'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Dangs Ahwa	-	-	Trop. F.	Chakraborty & Agrawal (2000); also at Waghai
Vishakapatnam Araku Borra Caves	18°20'	82°52'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS Chakraborty <i>et al.</i> (2004); C. Srinivasulu & Bhargavi Srinivasulu, BIS	Jamnagar Okha Port	-	-	Trop. F.	Chakraborty & Agrawal (2000)
Vishakapatnam Vizianagaram Vizianagaram	17°42' 18°07'	83°18' 83°25'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS	Junagadh Jasdhan	-	-	Trop. F.	Chakraborty & Agrawal (2000); also at Kudia, Sasangir, Talala
Warnagal Pasra Warangal	18°12' 18°00'	80°10' 79°50'	Trop. F. Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS C. Srinivasulu & Bhargavi Srinivasulu, BIS	Surat Mandavi	-	-	Trop. F.	Chakraborty & Agrawal (2000)
West Godavari Rampa-chodavaram	17°27'	81°46'	Trop. F.	C. Srinivasulu & Bhargavi Srinivasulu, BIS	Surendranagar Dharangadhra	22°59'	71°28'	Trop. F.	Chakraborty & Agrawal (2000); also at Limbdi
Bihar Paschim Champaran Valmiki TR	-	-	Trop. F.	Chakraborty <i>et al.</i> (1998)	Vadodra Shankheda	-	-	Trop. F.	Chakraborty & Agrawal (2000)
Rohtas Kaimur WS	-	-	Trop. F.	Bhattacharyya & Ghosh (2004); at Rohtas, Adhaura and Mundeswari	Karnataka Bangalore	12°59'	77°35'	Trop. F.	K. Shenoy, BIS; in scrub and University eucalyptus plantations Campus
Gujarat Ahmedabad Dahegam	-	-	Trop. F.	Chakraborty & Agrawal (2000); also at Nandol	Jindal, Tumkur Road	-	-	Trop. F.	K. Shenoy, BIS; in Bangalore (12°59' N & 77°35' E)
					Kodagu Virajendrapet	12°12'	75°48'	Trop. F.	Pradhan & Kurup (2001); in Nilgiri BR
					Kerala Iddukki Eravikulam NP	-	-	Trop. F.	Pradhan (2002)

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Distribution of *Suncus murinus* (Linnaeus, 1766) in South Asia (Bhutan, Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Palakkad Thiruvazham-kunnu	-	-	Trop. F.	A. Visa <i>et al.</i> , BIS, in Livestock Research Station	Trichy Omandur	-	-	Trop. F.	P. Neelananarayan, BIS; throughout the district
Thrissur Vellankara	-	-	Trop. F.	A. Visa <i>et al.</i> , BIS, in Kerala Agricultural University Campus	Puttanampatti	-	-	Trop. F.	P. Neelananarayan, BIS
Madhya Pradesh Balaghat & Mandla Kanha NP	-	-	Trop. F.	Ghose & Bhattacharyya (1995)	Tripura North Tripura ? locations	-	-	Trop. F.	Bhattacharyya & Ghosh (2002); in many localities throughout the district
Maharashtra Nandurbar Toranmal RF	21°47'	74°28'	Trop. F.	G. Jathar, BIS	South Tripura ? locations	-	-	Trop. F.	Bhattacharyya & Ghosh (2002); in many localities throughout the district
Meghalaya East Khasi Hills Adol	-	-	Trop. F.	Das <i>et al.</i> (1995)	West Tripura ? locations	-	-	Trop. F.	Bhattacharyya & Ghosh (2002); in many localities throughout the district
Cherrapunji	25°18'	91°42'	Trop. F.	Das <i>et al.</i> (1995)	West Bengal Jalpaiguri Jaldapara WS	26°20'	89°30'	Trop. F.	G. Maheswaran, BIS
Shillong	25°34'	91°53'	Trop. F.	Das <i>et al.</i> (1995)	NEPAL Central Nepal Royal Chitwan NP	27°35'	84°20'	Mon. St. F.	Shreshta (1997)
West Garo Hills Tura	25°31'	90°15'	Trop. F.	Das <i>et al.</i> (1995)	Far Western Nepal Shukla Phanta NP	-	-	Mon. St. F.	Shreshta (1997)
Jaintia Hills Nongkharari	-	-	Trop. F.	Das <i>et al.</i> (1995)	Mid Western Nepal Karnali NP	29°35'	82°10'	Mon. St. F.	Shreshta (1997)
Rajasthan Barmer and Jaisalmer Desert NP	-	-	D.	Kankane (2004)	Lang Tang NP	28°16'	85°37'	Mon. St. F.	Shreshta (1997)
Tamil Nadu Nagapattinam Nagapattinam	10°46'	79°50'	Trop. F.	P. Neelananarayan, BIS; throughout the district	Thanjavur	10°30'	79°30'	Trop. F.	P. Neelananarayan, BIS; throughout the

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Distribution of *Suncus murinus* (Linnaeus, 1766) in South Asia (Bhutan, Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in South Asia</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
PAKISTAN									
Baluchistan	-	-	Trop. F. Roberts (1997), Throughout all districts Semi D.		Haripur Haripur	33°59'	72°59'	Trop. F. Roberts (1997)	
Punjab	-	-	Trop. F. Roberts (1997), Throughout all districts		Kagan Balakot	34°33'	73°21'	Trop. F. Roberts (1997)	
? Mianwali	32°51'	73°47'	Trop. F. Roberts (1997)		Kohat Kohat	33°42'	72°00'	Trop. F. Roberts (1997)	
Choa Sadian Shah									
Lahore	31°05'	73°58'	Trop. F. Roberts (1997)		Malakand				
Changa Manga	31°31'	74°24'	Trop. F. Roberts (1997)		Malakand	34°30'	71°45'	Trop. F. Roberts (1997)	
Lahore					Manshera				
Rawalpindi	33°36'	73°04'	Trop. F. Roberts (1997)		Manshera	31°53'	72°37'	Trop. F. Roberts (1997)	
Rawalpindi					Mardan				
Sialkot	32°30'	74°32'	Trop. F. Roberts (1997)		Mardan	34°19'	71°56'	Trop. F. Roberts (1997)	
Sialkot					Swat				
Sind	-	-	Trop. F. Roberts (1997), Throughout all districts		Swat	35°35'	72°30'	Trop. F. Roberts (1997)	
Dadu	26°26'	67°52'	Trop. F. Roberts (1997)						
Sehwan					SRI LANKA				
Jacobabad	24°52'	67°03'	Trop. F. Roberts (1997)		Central Province				
Jacobabad					Kandy	7°22'	80°50'	Trop. F. W.L.D.P.T.S. de A. Goonatilake, BIS; < 10 sq km, alt. 1,100m, in cardmum plantations and montane forests. Threats include deforestation and forest fires	
Karachi	24°52'	67°03'	Trop. F. Roberts (1997)		Kandy	7°17'	80°38'	Trop. F. Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	
Karachi					Kumbalgamuwa	7°06'	80°51'	Trop. F. Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	
Sukkur	27°42'	68°42'	Trop. F. Roberts (1997)						
Sukkur									
North West Frontier Province					Matale				
Abbotabad	-	-	Roberts (1997), Throughout all districts		Gammaduwa	7°34'	80°42'	Trop. F. W.L.D.P.T.S. de A. Goonatilake, BIS	
Abbotabad					Matale	7°31'	80°38'	Trop. F. Phillips (1932); W.L.D.P.T.S. de A. Goonatilake, BIS	
	34°07'	73°08'	Trop. F. Roberts (1997)		Owilikanda	7°27'	80°34'	Trop. F. W.L.D.P.T.S. de A. Goonatilake, BIS	
Charsadda	34°18'	71°37'	Trop. F. Roberts (1997)		North Central Province				
Charsadda					Ampara				
Dir	35°17'	71°49'	Trop. F. Roberts (1997)		Kaimunai	-	-	Trop. F. Phillips (1935); W.L.D.P.T.S. de A.	
Dir									

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Suncus murinus* (Linnaeus, 1766) in South Asia (Bhutan, Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Anuradhapura	8°02'	80°36'	Trop. F.	Goonatilake, BIS					
Kekirawa	8°02'	80°36'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS		6°03'	80°12'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Wilpattu	8°25'	80°00'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS		6°19'	81°00'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; < 3 sq km, alt. 50-75m, in home gardens and paddies. Threats include vehicular traffic
North Eastern Province									
Jaffna	9°49'	80°02'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS	Uva Province				
Kanakesanthurai	9°49'	80°02'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS	Badulla	6°50'	80°59'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Mannar	8°35'	79°56'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Passara	6°56'	81°09'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS
Marichchakkuddi	8°35'	79°56'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Monaragala	6°25'	81°20'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS
North Western Province					Kataragama	6°26'	81°08'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS; in town
Karunegalla	-	-	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Tanamaliwila				
Karunegalla	-	-	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					
Wariyapola	7°27'	80°38'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS	Western Province				
					Colombo	6°50'	79°53'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; < 20 sq km, alt. 0-600m, home gardens. Threats include domestic predators, land reclamation and vehicular traffic
Sabaragamuwa Province					Attidiya-Bellanwila	6°55'	79°50'	Trop. F.	Phillips (1980); W.L.D.P.T.S. de A. Goonatilake, BIS; in town
Balangoda	7°06'	80°51'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS	Colombo	6°51'	79°51'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens
Kegalle	6°11'	80°45'	Trop. F.	Karunratne (1992)	Dehiwala	7°35'	79°50'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens
Kinchigune	6°43'	80°41'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in grassland	Moratuwa	6°47'	79°57'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens
Pinnawala	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; near Pinnawala (6°43' N & 80°41' E); in grassland	Piliyandala				
Rabukkana	-	-	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; near Pinnawala (6°43' N & 80°41' E); in grassland	Gampaha	6°26'	80°20'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; < 5 sq km, in home gardens. Threats include domestic predators
Ratnapura	6°38'	80°40'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS	Arugodda				
Balangoda	6°38'	80°40'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatilake, BIS					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Distribution of *Suncus murinus* (Linnaeus, 1766) in South Asia (Bhutan, Bangladesh, India, Nepal, Pakistan and Sri Lanka) from literature and recent field studies ... Contd.

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
Gampaha	6°59'	80°56'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens
Kadawatha	6°58'	80°51'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; in home gardens
Mirigama	7°15'	80°07'	Trop. F.	W.L.D.P.T.S. de A. Goonatilake, BIS; also in Handrumula, Polonnaruwa forest; < 20 sq km, alt. 90-170m, in home gardens and forest. Threats include deforestation and domestic predators

Kalatara
Bolgoda South 6°26' 80°20' Trop. F. Ranwella (1995)

BHUTAN
? location

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Suncus stoliczkanus* (Anderson, 1877)**

LEAST CONCERN

Synonyms: *Crocidura (Pachyura) bidiana* Anderson, 1877; *Crocidura (Pachyura) stoliczkanus* Anderson, 1877; *Crocidura (Pachyura) subflava* Anderson, 1877; *Crocidura leucogenys* Dobson, 1888; *Suncus stoliczkanus leucogenys* (Dobson, 1888)

Order: Soricomorpha

Family: Soricidae

Common names: English: Anderson's Shrew

Taxonomic remarks: Ellerman and Morrison-Scott (1951) listed three subspecies under this taxon, that were synonymized by Corbet and Hill (1992), and Hutterer (1993)

Habit: Nocturnal, crepuscular, terrestrial

Habitat: Tropical forest

Niche: Gardens, grassy embankments, near water courses and paddy fields, riverine areas, open forest interspersed with scrub

Elevation: Up to 500m

Distribution

Global: Endemic to South Asia

South Asia: India, Nepal, Pakistan

Extent of Occurrence: > 20,000 sq km [India > 20,000; Nepal > 20,000; Pakistan > 20,000]

Area of Occupancy: > 2,000 sq km India > 2,000; Nepal > 2,000; Pakistan > 2,000]

Locations/subpopulations: 18/many, Fragmented

Habitat status: Quantitative and qualitative decline in habitat condition at the rate of < 20% during the last 10 years and a same rate predicted in future due to habitat loss resulting from human settlements, deforestation and clearing for farming

Threats

Habitat loss due to agriculture expanse, pesticide use and natural predators

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, informal sightings, museum study, literature; observed, inferred

Status

C.A.M.P. (IUCN Ver. 3.1) **LEAST CONCERN**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

India: Least Concern

Nepal: Least Concern

Pakistan: Least Concern

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Karnataka: Dandeli NP

Maharashtra: Sanjay Gandhi NP

Nepal Eastern Nepal: Makalu Barun NP; Mid Western Nepal: Rara NP

Pakistan

Punjab: Lal Suhanra NP; Sindh: Kirthar NP

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty *et al.*, 2004; Roberts, 1997; Chakraborty & Agrawal, 2000; Shreshta, 1997; Yazdani *et al.*, 1992; BIS on species by: G. Jathar

Compilers

S. Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, W.L.D.P.T.S. de A. Goonatilake, B.A. Daniel

Reviewers: W.L.D.P.T.S. de A. Goonatilake, C. Srinivasulu

Recent Field Studies

India

Jathar, G., Toranmal Reserve Forest, Nandurbar, Maharashtra, 2001-2003, Ecological studies of the forest owl

Locations from where *Suncus stoliczkanus* (Anderson, 1877) is known in India, Nepal and Pakistan



Distribution of *Suncus stoliczkanus* (Anderson, 1877) (Endemic to India, Nepal and Pakistan) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>	<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia					South Asia				
INDIA									
Gujarat									
Kachch					Nashik	20°13'	74°05'	-	BNHS Records
Kachch			Trop. F.	Chakraborty & Agrawal (2000)	Nashik				BNHS Records
Surendranagar					Gujarat				Roberts (1997)
Dharangadhra	22°59'	71°28'	Trop. F.	BNHS Records; Chakraborty & Agrawal (2000)	Kathiawar	-	-	-	Roberts (1997)
Himachal Pradesh					Uttaranchal				
Kangra					Almora	29°50'	79°30'	-	BNHS Records
Dharmasala	32°13'	76°19'	-	BNHS Records	Almora				BNHS Records
Karnataka					NEPAL				
Uttara Kannad					Eastern Nepal				
Dandeli/Kali Nadi	15°16'	74°37'	-	BNHS Records	Makalu Barun NP	27°55'	87°08'	Temp. F.	Shrestha (1997)
Madhya Pradesh					Mid Western Nepal				
East Nimar					Rara NP	29°34'	82°04'	Temp. F.	Shrestha (1997)
Asirgarh	21°29'	76°16'	-	BNHS Records	PAKISTAN				
Nimar	21°45'	76°35'	-	BNHS Records	Punjab				
Guna					-	-	-	-	Roberts (1997); throughout the State
Guna	24°30'	77°30'	-	BNHS Records	Lahore	31°05'	73°58'	Trop. F.	Roberts (1997)
Gwalior					Changa Manga				
Bhind	26°30'	78°45'	-	BNHS Records	Sind				
Maharashtra					Karachi	24°52'	67°03'	Trop. F.	Roberts (1997)
Chandrapur					Karachi				
Andhari	20°16'	75°29'	-	BNHS Records	Sukkur	27°41'	68°54'	Trop. F.	Roberts (1997)
Mumbai					Sukkur	27°42'	68°42'	Trop. F.	Roberts (1997)
Sanjay Gandhi NP				Yazdani <i>et al.</i> (1992)	Thatta	24°45'	67°56'	Trop. F.	Roberts (1997)
Nandurbar					Thatta				
Toranmal RF	21°47'	74°28'	Trop. F.	G. Jathar, BIS; 100m from stream in open forest interspersed with scrub, alt. 400-500m					

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Suncus zeylanicus* Phillips, 1928**

ENDANGERED

Synonyms: *Suncus murinus* zeylanicus (Phillips, 1928)

Order: Soricomorpha

Family: Soricidae

Common names: English: Ceylon Jungle Shrew, Sri Lankan Shrew; Sinhalese: *Kanu-Miya*; Tamil: *Mungi' elli*

Taxonomic remarks: Ellerman and Morrison-Scott (1951) included it under *Suncus murinus* (Linnaeus, 1766), but it as been treated as distinct species basing on major morphological differences by Phillips (1980) and McKay (1984), a trend followed by Corbet and Hill (1992), Hutterer (1993) and IUCN (1995).

Habit: Nocturnal, crepuscular, terrestrial

Habitat: Tropical forest

Niche: Low land wet zone; primary and secondary rain forests

Elevation: 150-1,000m

Distribution

Global: Endemic to Sri Lanka

Extent of Occurrence: 101-5,000 sq km

Area of Occupancy: 11-500 sq km

Locations/subpopulations: 5/2, Fragmented

Habitat status: Quantitative and qualitative decline in habitat condition at the rate of < 20% during the last 10 years and a similar rate predicted in future due to habitat loss resulting from human settlements, deforestation, clearing for tea and coffee plantations, and illegal timber extraction

Threats

Habitat loss due to agriculture expanse and illegal timber extraction

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field study, Informal sightings, literature; inferred, observed

Status

C.A.M.P. (IUCN Ver. 3.1) **ENDANGERED**

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

Sri Lanka

Sabaragamuwa Province: Sinharaja FR

Recommendations

Research: Survey studies, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty *et al.*, 2004; Phillips, 1935; Zoysa and Raheem, 1987; BIS on species by: D. Wikramasinghe, W.L.D.P.T.S. de A. Goonatilake

Compilers

W.L.D.P.T.S. de A. Goonatilake, C. Srinivasulu, Wes Sechrest, B.A. Daniel

Reviewers: W.L.D.P.T.S. de A. Goonatilake

Recent Field Studies

Sri Lanka

Zoysa and Raheem, Sinharaja Forest Reserve, Ratnapura district, 1987

Wikramasinghe, D., Colombo, Ratnapura and Gampaha districts, 2000 onwards

Locations from where *Suncus zeylanicus* Phillips, 1928 is known in Sri Lanka



Distribution of *Suncus zeylanicus* Phillips, 1928 (Endemic to Sri Lanka) from literature and recent field studies

<u>Distribution in</u>	<u>Lat.</u>	<u>Long.</u>	<u>Habitat</u>	<u>Notes / Sources</u>
South Asia				
SRI LANKA				
Central Province				
Matale	-	-	Trop. F.	Phillips (1935); near Gammaduwa (7°34' N & 80°42' N)
Mousekanda Estate				
Sabargamuwa Province				
Kegalle	7°05'	80°29'	Trop. F.	Phillips (1935); W.L.D.P.T.S. de A. Goonatillake, BIS; near Kitulgala
Gonagama Estate				
Ratnapura Kalawana	7°10'	79°58'	Trop. F.	D. Wickramasinghe, BIS
Sinharaja FR	6°24'	80°30'	Trop. F.	Zoysa & Raheem (1987); W.L.D.P.T.S. de A. Goonatillake, BIS
Western Province				
Colombo	6°51'	80°10'	Trop. F.	D. Wickramasinghe, BIS
Labugama				

C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D. - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S. - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Euroscaptor micrura* (Hodgson, 1841)**

LEAST CONCERN in South Asia

Synonyms: *Talpa cryptura* Blyth, 1843; *Talpa macrura* Hodgson, 1858; *Talpa micrura* Hodgson, 1841; *Talpa micrurus* Hodgson, 1841

Order: Soricomorpha

Family: Talpidae

Common names: English: Himalayan Mole

Taxonomic remarks: The genus *Euroscaptor* Miller, 1940 had been earlier synonymised or treated as sub genus of the genus *Talpa* Linnaeus, 1758 by various authors. Ellerman and Morrison-Scott (1951) treated it as *Talpa micrura* Hodgson, 1841 also followed by Corbet and Hill (1992). Yates and Moore (1990) and Hutterer (1993), based on distinct characters, recognised it as a distinct genus

Habit: Nocturnal

Habitat: Subtropical and tropical montane forest

Niche: In leaf litter and rocky gravelly areas

Elevation: Usually found between 1,000-2,000m but has also been recorded at 100m in India

Distribution

Global: Bhutan, India, Nepal, Myanmar, Malaysia, Thailand, Laos, Vietnam

South Asia: Bhutan, India, Nepal

Extent of Occurrence: > 20,000 sq km [Bhutan < 20,000; India > 20,000; Nepal < 20,000]

Area of Occupancy: > 2001 sq km [Bhutan < 2,000; India > 2,000; Nepal < 2,000]

Locations/subpopulations: 18/8, Fragmented

Habitat status: Quantitative and qualitative decrease in habitat conditions at the rate of < 20% in last 5 years and a similar rate is predicted for the next 5 years due to habitat destruction and agricultural expansion

Threats

Habitat loss due to expansion of agricultural lands, flooding of the Terai and Duar regions where this taxon occurs

Trade: For local consumption

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Unknown

Data source

Field studies, museum record, informal sightings, literature; inferred, observed, estimated

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) **LEAST CONCERN in South Asia**

Rationale: Widely distributed species with a few major threats, but not serious to be categorised as Near Threatened.

National Status (IUCN Ver. 3.0)

Bhutan: Vulnerable ↓ Near Threatened

B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat quality in the country. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

India: Least Concern

Nepal: Vulnerable ↓ Near Threatened

B1ab(iii)+2ab(iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat quality in the country. However, since the species occurs in the neighbouring region with chances of migration/recolonisation, it is downgraded by one category.

Wildlife Legislation: None

CITES: Not listed

Presence in Protected Areas

India

Assam: Kaziranga NP

Mizoram: Murlen NP

West Bengal: Jaldapara WS

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty *et al.*, 2004; Das *et al.*, 1995; IUCN, 1995; Mishra *et al.* (2004)

Compilers

T.P. Bhattacharyya, S.S. Saha, Sujit Chakraborty, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: Rest of participants

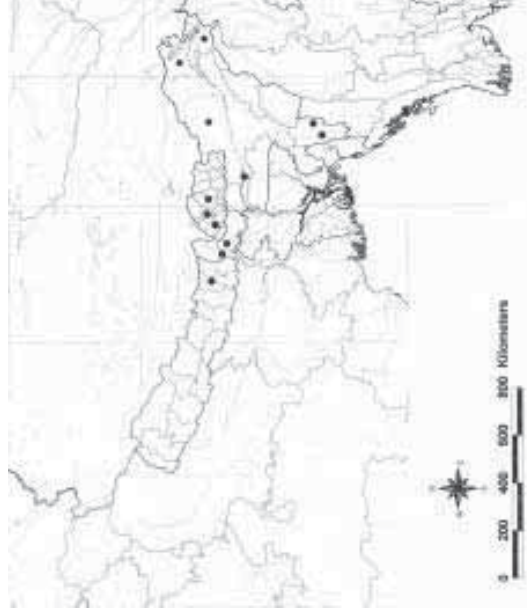
Recent Field Studies

India T.P. Bhattacharyya, Sairep RF, and Murlein NP, Mizoram, 1995, Faunistic Survey

Distribution of *Euroscaptor micrura* (Hodgson, 1841) in South Asia (Bhutan, India and Nepal) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources	Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BHUTAN					West Bengal				
Central Bhutan	26°51'	90°30'	-	S. Saha (pers. comm.)	Darjiling	-	-	-	BNHS Mammal survey collection records
Gaylagphug	-	-	-	S. S. Saha (pers. comm.)	Batisia	26°59'	88°17'	-	BNHS Mammal survey collection records
Gomchu	-	-	-	surveys spanning 1967-1971	Gopalchhara	-	-	-	-
Paro	27°26'	89°25'	-	S. S. Saha (pers. comm.)	Sivok	26°50'	88°22'	-	BNHS Mammal survey collection records
				surveys spanning 1967-1971	Jalpaiguri	26°30'	88°30'	-	BNHS Mammal survey collection records
					Jalpaiguri	-	-	-	-
INDIA					NEPAL				
Arunachal Pradesh					Eastern Nepal	-	-	-	IUCN (1995)
Changlang	27°23'	96°15'	-	Mishra <i>et al.</i> (2004)					
Namdapha NP	to 27°39'	95°58'							
East Kameng	26°54'	92°36'	-	Mishra <i>et al.</i> (2004)					
Pakhui WS	to 27°16'	93°09'							
North Dibang	28°42'	95°42'	-	BNHS Mammal survey collection records					
Dibang Valley									
Assam									
Golaghat and Nagaon	26°35'	96°25'	-	S. S. Saha (pers. comm.)					
Kaziranga NP				surveys spanning 1967-1971					
Mizoram									
Champai	23°10'	93°24'	-	T. P. Bhattacharyya					
North Khawbung				(pers. comm.)					
Lunglei	22°49'	92°49'	-	T. P. Bhattacharyya					
Sairep				(pers. comm.)					
Meghalaya									
West Garo Hills	-	-	-	Das <i>et al.</i> (1995)					
? location									

Locations from where *Euroscaptor micrura* (Hodgson, 1841) is known in Bhutan, India and Nepal



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RMI - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

***Parascaptor leucura* (Blyth, 1850)**

LEAST CONCERN in South Asia

Synonyms: *Talpa leucura* Blyth, 1850; *Talpa micrura leucura* (Blyth, 1850)

Order: Soricomorpha

Family: Talpidae

Common names: English: Assamese Mole, Indian Mole

Taxonomic remarks: The genus *Parascaptor* Gill, 1875 had been earlier synonymised or treated as sub genus of the genus *Talpa* Linnaeus, 1758 by authors like Corbet and Hill (1991). Corbet (1978), Abe *et al.* (1991) and Hutterer (1993) recognised it as a distinct genus. See comments under genus *Euroscaptor* Miller, 1940. Ellerman and Morrison-Scott (1951) treated it as *Talpa micrura leucura* (Blyth, 1850), also followed by Corbet and Hill (1992) who remarked that it could be a separate species but doubted that it warranted generic separation

Habit: Terrestrial, subterranean

Habitat: Tropical forest and subtropical montane forest

Niche: Leaf litter in montane forest

Elevation: 100-2,500m

Distribution

Global: Bangladesh, China, India, Laos, Myanmar

South Asia: Bangladesh, India

Extent of Occurrence: > 20,000 sq km [In Bangladesh < 5,000; India > 20,000]

Area of Occupancy: > 2001 sq km [In Bangladesh < 500; India > 2,000]

Locations/subpopulations: 6/4, Fragmented [Number of subpopulations and locations could be more]

Habitat status: Quantitative and qualitative decrease in habitat conditions at the rate of > 50% in last 50 years and a future decrease at the rate of > 10% is predicted for the next 10 years due to habitat destruction and agricultural expansion

Threats

Habitat loss due to clear cutting, woodland clearing, human settlements, expansion of agricultural lands, increased use of agrochemicals and pesticides

Trade: Not in trade

Population

Generation time: Unknown

Total population: Unknown

Mature individuals: Unknown

Population trend: Decrease in population at the rate of > 30% in the last 25 to 30 years and a future decline at the rate of > 30% in 5 to 10 years is predicted

Data source

Informal sightings, museum records, literature; observed

Status

C.A.M.P. (IUCN Ver. 3.1 & 3.0) NEAR THREATENED ↓

LEAST CONCERN in South Asia

Rationale: Widely distributed species with major threats affecting its habitat and/or population, although not enough to be categorised as Vulnerable. Since it occurs in the neighbouring regions with chances of migration/recolonisation, it is downgraded to Least Concern.

National Status (IUCN Ver. 3.0)

Bangladesh: Endangered ↓ Vulnerable

B1ab(ii,iii)+2ab(ii,iii)

Rationale: Restricted in extent of occurrence and area of occupancy, few and fragmented locations, with major threats affecting habitat area and quality in the country. However, since the species occurs in the neighbouring country with chances of migration/recolonisation, it is downgraded by one category.

India: Least Concern

Wildlife Legislation: None

CITES: Not listed.

Presence in Protected Areas

Bangladesh

Hagherkhil WS, Lawachara NP

India

Meghalaya: Nongkhyllen WS, Balphakram NP

Mizoram: Murlen NP **Tripura:** Rowa WS

Recommendations

Research: Survey, taxonomic research

Management: Habitat management, monitoring

Captive stocks: None

Comments

None

Sources

Chakraborty *et al.*, 2004; IUCN, 1995; BIS on species by: S.U. Sarker

Compilers

Sujit Chakraborty, T.P. Bhattacharyya, C. Srinivasulu, Meena Venkataraman, Wes Sechrest, B.A. Daniel

Reviewers: None

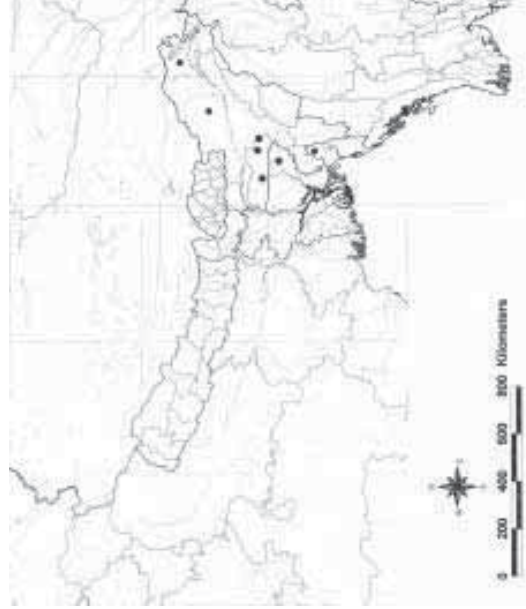
Recent Field Studies

S.S. Saha, Itanagar, Arunachal Pradesh, 2001, General survey

Distribution of *Prascaptor leucura* (Blyth, 1850) in South Asia (Bangladesh and India) from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Habitat	Notes / Sources
BANGLADESH				
Chittagong	-	-	Trop. F.	S.U. Sarker, BIS; found in village grove
Hagherkhil WS	-	-	Trop. F.	S.U. Sarker (pers. comm.)
Sylhet	-	-	Trop. F.	S.U. Sarker (pers. comm.)
Lawachara NP	-	-	Trop. F.	S.U. Sarker (pers. comm.)
INDIA				
Arunachal Pradesh				
Papumpare	27°06'	93°07'	Mon. St. F.	S.S. Saha (pers. comm.), collections made by S.S. Saha in 2001
Itanagar				
Assam				
Cacher	26°10'	93°30'	Mon. St. F.	BNHS Mammal survey collection records
Mikir Hills				
Meghalaya				
East Khasi Hills	25°18'	91°42'	Mon. St. F.	Chakraborty <i>et al.</i> (2004); Das <i>et al.</i> (1995); IUCN (1995)
Cherrapunji				
Jaintia Hills	25°29'	92°21'	Mon. St. F.	BNHS Mammal survey collection records; Das <i>et al.</i> (1995)
Shangpung				

Locations from where *Parascaptor leucura* (Blyth, 1850) is known in Bangladesh and India



C.D. - Cold Desert; Comm. - Commensal; D - Desert; Ever. F. - Evergreen Forest; H.D - Hot Desert; Mang. F. - Mangrove Forest; Mon.G.S - Montane Grassland Shola; Mon. St. F. - Montane Subtropical Forest; Padd. F. - Paddy Field; Rain. F. - Rain Forest; Riv. F. - Riverine Forest; RM - Rocky Mountains; S. Eve. F. - Semi Evergreen Forest; Semi D. - Semi Desert; SubTr. F. - Sub Tropical Forest; Temp. F. - Temperate Forest; Trop. F. - Tropical Forest; Trop. G. - Tropical Grasslands

Status of South Asian Non-volant Small Mammals

5. References

References

- Abdulali, H. and J.C. Daniel (1952).** Races of Giant Squirrel (*Ratufa indica*). *Journal of the Bombay Natural History Society* 50: 467-474.
- Abe, H. (1971).** Small mammals of Central Nepal. *Journal of the Faculty of Agriculture, Hokkaido University*, 56(4): 367-423.
- Abe, H. (1977).** Variation and taxonomy of some small mammals from Central Nepal. *Journal of the Mammalian Society of Japan* 7(2): 63-73.
- Abe, H. (1982).** Ecological distribution and faunal structure of small mammals in central Nepal. *Mammalia* 46: 477-503.
- Abe, H., S. Shiraishi and S. Arai (1991).** A new mole from Uotsuri-jima, the Ryukyu Islands. *Journal of the Mammalian Society of Japan* 15: 47-60.
- Agrawal, V.C. (1967a).** Taxonomic study of the skulls of Oriental rodents in relation to ecology. *Records of the Indian Museum* 60: 125-326.
- Agrawal, V.C. (1967b).** New mammal records from Rajasthan. *Journal of Science and Technology* 5: 342-344.
- Agrawal, V.C. (1970).** Taxonomic status of *Millardia Thomas* (Rodentia: Muridae). *Mammalia* 34: 496-504.
- Agrawal, V.C. (1973).** A note on the taxonomic status of *Erinaceus blanfordi* Anderson and *Erinaceus jerdoni* Anderson (Mammalia: Insectivora). *Journal of the Zoological Society of India* 25: 158-159.
- Agrawal, V.C. (1973).** Notes on collection of mammals from Goa. *Records of the Zoological Survey of India* 67: 261-280.
- Agrawal, V.C. (2000).** Taxonomic Studies on Indian Muridae and Hystricidae (Mammalia: Rodentia). *Records of the Zoological Survey of India, Miscellaneous Publications, Occasional Paper No. 180*: 1-177pp.
- Agrawal, V.C. and S. Chakraborty (1970).** Occurrence of the Woolly Flying Squirrel (*Eupetaurus cinereus* Thomas (Mammalia: Rodentia: Sciuridae)) in North Sikkim. *Journal of the Bombay Natural History Society* 66: 615-616.
- Agrawal, V.C. and S. Chakraborty (1971).** Notes on a collection of small mammals from Nepal, with a description of new Mouse-hare (Lagomorpha: Ochotonidae). *Proceedings of the Zoological Society of Calcutta* 24: 41-46.
- Agrawal, V.C. and S. Chakraborty (1976).** Revision of the subspecies of the Lesser Bandicoot Rat, *Bandicota bengalensis* (Gray) (Rodentia: Muridae). *Records of the Zoological Survey of India* 69: 267-274.
- Agrawal, V.C. and S. Chakraborty (1979).** Catalogue of mammals in the Zoological Survey of India. Part 1. Sciuridae. *Records of the Zoological Survey of India* 74: 333-481.
- Agrawal, V.C. and S. Chakraborty (1980).** Intraspecific geographical variations in the Long-tailed Tree Mouse, *Vandeleuria oleracea* (Bennett). *Bulletin of the Zoological Survey of India* 3: 77-85.
- Agrawal, V.C. and S. Chakraborty (1981).** Notes on the intraspecific geographical variation in the Indian Antelope Rat, *Tatera indica* (Hardwicke) (Mammalia: Rodentia). *Records of the Zoological Survey of India* 79: 83-92.
- Agrawal, V.C. and S. Chakraborty (1982).** Intraspecific geographical variations in the Indian Bush Rat, *Golunda ellioti* J.E. Gray. *Records of the Zoological Survey of India* 79: 521-530.
- Agrawal, V.C., P.K. Das, S. Chakraborty, R.K. Ghose, A.K. Mondal, T.K. Chakraborty, A.K. Poddar, J.P. Lal, T.P. Bhattacharyya and M.K. Ghosh (1992).** *Mammalia*, pp.27-69. In: Director (ed.), *Fauna of West Bengal; State Fauna Series 3, Part 1*. Zoological Survey of India, Calcutta.
- Agrawal, V.C. and T.P. Bhattacharyya (1979).** Taxonomic status of *Macroxus punctatissimus* Gray (Rodentia: Sciuridae). *Proceedings of Zoological Society (Calcutta)* 30: 57-59.
- Alfred, J.R.B., N.K. Sinha and S. Chakraborty (2002).** Checklist of Mammals of India. *Records of the Zoological Survey of India, Occasional Paper* 199: 1-289. Zoological Survey of India, Kolkata.
- Allen, G.M. (1938).** The mammals of China and Mongolia. In: Granger, W. (editor). *Natural History of Central Asia*. Central Asiatic Expeditions of the American Museum of Natural History, New York, 11, Part 1: 1-620.
- Anderson, J. (1881).** *Catalogue of Mammalia in the Indian Museum*. Calcutta, Part 1, Indian Museum, Calcutta.
- Angermann, R. (1983).** The taxonomy of Old World Lepus. *Acta Zoologica Fennica* 174: 17-21.
- Angermann, R., J.E.C. Flux, J.A. Chapman and A.T. Smith (1990).** The Lagomorph classification, pp.7-13. In: Chapman, J.A. and J.E.C. Flux (editors) *Rabbits, Hares and Pikas*. I.U.C.N., Gland, Switzerland, 168pp.
- Arrighi, F.E.M., W. Sorenson and L.R. Shirley (1969).** Chromosomes of the Tree Shrew (Tupaiaidae). *Cytogenetics* 8: 199-208.
- Ashraf, N.V.K., A. Kumar and A.J.T. Johnsingh (1993).** On the relative abundance of two sympatric flying squirrels of Western Ghats. *Journal of the Bombay Natural History Society* 90: 158-162.
- Ashwathnarayana, N.V. (1987).** Evolutionary trends in the genus *Funambulus* (Mammalia - Rodentia). *Current Science* 56: 1298-1301.
- Balasubramaniam, S., A.H.M. Jayasuriya and P.B. Karunaratne (1990).** *Fauna of the study areas - Yagirala, Warateligoda and Runakanda Forest Reserves*. Unpublished Forest Management Plan for National Forests of Wet Zone, Sri Lanka. Colombo, Sri Lanka, 13pp.
- Bates, P.J.J. (1988).** Systematics and zoogeography of *Tatera* (Rodentia: Gerbillinae) of north-east Africa and Asia. *Bonner Zoologische Beiträge* 39: 265-303.

- Bates, P.J.J. (1994).** The distribution of *Acomys* (Rodentia: Muridae) in Africa and Asia. *Israel Journal of Zoology* 40: 199-214.
- Bhattacharyya, T.P. and M.K. Ghosh (2002).** Mammalia, pp.31-46. In: Director (ed.), *Fauna of Tripura; State Fauna Series 7, Part 1*. Zoological Survey of India, Kolkata.
- Bhattacharyya, T.P. and M.K. Ghosh (2004).** *Faunal composition of Kaimur Wildlife Sanctuary (Bihar); Fauna of Conservation Areas Series No. 22*. Zoological Survey of India, Kolkata, 1-49pp.
- Biswas, B. and H. Khajuria (1955).** Zoological Results of the 'Daily Mail' Himalayan Expedition, 1954, Four new mammals from Khumbu, Eastern Nepal. *Proceedings of the Zoological Society of Calcutta* 8: 26-29.
- Biswas, B. and H. Khajuria (1957).** Zoological results of the 'Daily Mail' Himalayan Expedition 1954. Notes on some mammals of Khumbu, Eastern Nepal. *Proceedings of the Zoological Society of Calcutta, Mukherjee Memorial Volume*, 229-253pp.
- Biswas, B. and K.K. Tiwari (1969).** Taxonomy and distribution of Indian Rodents. *Proceedings of the Indian Rodent Symposium, Calcutta*, 9-45pp.
- Biswas, B. and R.K. Ghose (1970).** Taxonomic notes on the Indian pale hedgehogs of the genus *Paraechinus* Trouessart, with descriptions of a new species and subspecies. *Mammalia* 36: 467-477.
- Blanford, W.T. (1877).** On an apparently a new hare from Gilgit. *Journal of the Asiatic Society of Bengal* 46(2): 323-327.
- Blanford, W.T. (1888).** *The Fauna of British India. Mammalia, Part 1*. Taylor and Francis, London, 250pp+xii.
- Blanford, W.T. (1888).** *Fauna of British India, including Ceylon and Burma. Mammalia, Part 1*. Taylor & Francis Ltd., London, 250pp.
- Blanford, W.T. (1891).** *The Fauna of British India. Mammalia, Part 2*. Taylor and Francis, London, 617pp+xx.
- Blanford, W.T. (1897).** The large Indian squirrel (*Sciurus indicus* Erx.). *Journal of the Bombay Natural History Society* 11: 298-305.
- Blumstein, D.T. and J.M. Foggin (1997).** Effects of vegetative variation on weaning success, over winter survival and social group density in golden marmots. *Journal of Zoology (London)* 243: 57-67.
- Blyth, E. (1863).** *Catalogue of the Mammalia in the Museum of Asiatic Society*. Calcutta, 187pp+xiii.
- Blyth, E. (1863).** A memoir on the rats and mice of India. *Journal of the Asiatic Society of Bengal* 32: 327-353.
- Bonhote, J.L. (1901a).** On the squirrels of the *Sciurus erythraeus* group. *Annals of the Magazine of Natural History* 7(7): 160-167.
- Bonhote, J.L. (1901b).** On the squirrels of the *Sciurus prevosti* group. *Annals of the Magazine of Natural History* 7(7): 167-177.
- Bonhote, J.L. (1901c).** On *Sciurus caniceps* and allied species. *Annals of the Magazine of Natural History* 7(7): 270-275.
- Borges, R.M. (1989).** Resource heterogeneity and the foraging ecology of the Malabar giant squirrel (*Ratufa indica*). Ph.D. Dissertation submitted to University of Miami, Florida.
- Brandt, J.F. (1855).** Beitrage zur nahern Kenntniss der Säugethiere Russland's. Kaiserlichen Akademie der Wissenschaften, Saint Petersburg, Memoires Math matiques., *Physiques et Naturelles* 7: 1-365. (Original not referred).
- Burke, J.J. (1941).** New fossil Leporidae from Mongolia. *American Museum Novitates* 1117: 1-23.
- Butler, P.M. (1988).** Phylogeny of the Insectivores, pp.117-141. In: M.J. Benton (editor). *The Phylogeny and Classification of the Tetrapods, 2 (Mammals)*. Clarendon Press, Oxford.
- Cabrera, A. (1925).** *Genera mammalium: Insectivora, Galaeopithecina*. Museo Nacional de Ciencias Naturales, Madrid, 232pp.
- Carleton, M.D. and G.G. Musser (1984).** Muroid rodents, pp.289-379. In: Anderson, S. and J.K. Jones, Jr. (eds.) *Orders and Families of Recent Mammals of the World*. John Wiley and Sons, New York, 686pp.
- Carleton, M.D. and G.G. Musser (1989).** Systematic studies of oryzomyine rodents (Muridae, Sigmodontinae): a synopsis of *Microzomys*. *Bulletin of the American Museum of Natural History* 191: 1-83.
- Campbell, C.B.G. (1966).** Taxonomic status of tree shrews. *Science* 153: 436.
- Campbell, C.B.G. (1974).** On the phyletic relationships of the tree shrews. *Mammalian Review* 4: 125-143.
- Catzefflis, F.M., T. Maddalena, S. Hellwing and P. Vogel (1985).** Unexpected findings on the taxonomic status of East Mediterranean *Crocidura russula auct.* (Mammalia, Insectivora). *Zeitschrift für Säugetierkunde* 50: 185-201.
- Chakraborty, R. (2005).** An account of Madras Tree Shrew (*Anathana ellioti* (Waterhouse)), an Indian endemic species. *Rat-A-Tattle* 5(1): 3-5.
- Chakraborty, R. and S. Chakraborty (1991).** Taxonomic review of the genus *Bandicota* Gray and its species with a note on the intraspecific geographical variation in the Large Bandicoot Rat (*Bandicota indica* Bechstein). *Records of the Zoological Survey of India* 88: 87-99.
- Chakraborty, S. (1975).** On a collection of Mammals from Bhutan. *Records of the Zoological Survey of India* 68: 1-20.
- Chakraborty, S. (1981).** Studies on *Sciuropterus baberi* Blyth. *Proceedings of the Zoological Society (Calcutta)* 32: 57-63.
- Chakraborty, S. (1983).** Contributions to the knowledge of the Mammalian fauna of Jammu and Kashmir, India. *Records of the Zoological Survey of India, Miscellaneous Publications, Occasional Paper No. 38*: 1-129pp.

- Chakraborty, S. (1985).** Studies on the genus *Callosciurus* Gray (Rodentia: Sciuridae). *Records of the Zoological Survey of India, Miscellaneous Publications, Occasional Paper No. 63*: 1-93pp.
- Chakraborty, S., C. Srinivasulu, Bhargavi Srinivasulu, M.S. Pradhan and P.O. Nameer (2004).** Checklist of insectivores (Mammalia: Insectivora) of South Asia. *Zoos' Print Journal* 19(2): 1361-1371.
- Chakraborty, S., T.P. Bhattacharyya and J.K. Dey (1998).** Faunal composition with special reference to mammals, pp.1-41. In: Director (ed.), *Fauna of Valmiki Tiger Reserve; Fauna of Conservation Areas 10*. Zoological Survey of India, Kolkata.
- Chakraborty, S., T.P. Bhattacharyya and J.K. Dey, M.K. Ghosh, T.K. Chakraborty and A.K. Poddar (2004).** Mammals, pp.1-96. In: Director (ed.), *Fauna of Andhra Pradesh; State Fauna Series 5, Part 2*. Zoological Survey of India, Kolkata.
- Chakraborty, S. and V.C. Agrawal (1977).** A melanistic example of woolly flying squirrel, *Eupetaurus cinereus* Thomas (Rodentia: Sciuridae). *Journal of the Bombay Natural History Society* 74: 346-47.
- Chakraborty, S. and V.C. Agrawal (2000).** Mammalia, pp.15-83. In: Director (ed.), *Fauna of Gujarat; State Fauna Series 8, Part 1*. Zoological Survey of India, Kolkata.
- Chapman, J.A. and J.E.C. Flux (eds.) (1990).** *Rabbits, Hares and Pikas*. I.U.C.N., Gland, Switzerland, 168pp.
- Chauhan, R. and S. Narain (2001).** The Indian Pangolin (*Manis crassicaudata*) in the Chambal ravines of Itawa. *Zoos' Print Journal* 16(5): 501.
- Chundawat, P.S., S.K. Sharma and H.S. Solanki (2002).** Occurrence of the Large Brown Flying Squirrel (*Petaurista petaurista philippensis*) in Phulwari Wildlife Sanctuary, Rajasthan. *Zoos' Print Journal* 17(11): 941.
- Corbet, G.B. (1978).** *The Mammals of the Palaearctic Region: A Taxonomic Review*. British Museum (Natural History), London, 314pp.
- Corbet, G.B. (1983).** A review of classification in the family Leporidae. *Acta Zoologica Fennica* 174: 11-15.
- Corbet, G.B. (1988).** The family Erinaceidae: a synthesis of its taxonomy, phylogeny, ecology and zoogeography. *Mammal Review* 18: 117-172.
- Corbet, G.B. and J.E. Hill (1980).** *A World List of Mammalian Species*. British Museum (Natural History), London, 226pp.
- Corbet, G.B. and J.E. Hill (1986).** *A World List of Mammalian Species. 2nd edition*, British Museum (Natural History), London, 254pp.
- Corbet, G.B. and J.E. Hill (1991).** *A World List of Mammalian Species. 3rd edition*, British Museum (Natural History) Publications, London, 243pp.
- Corbet, G.B. and J.E. Hill (1992).** *The Mammals of the Indomalayan region: A systematic review*. Oxford University Press, Oxford, 488pp.
- Das, I. (1999).** A noteworthy collection of Mammals from Mt. Harriet, Andaman Islands, India. *Journal of South Asian Natural History* 4(2): 181-185.
- Das, P.K., R.K. Ghose, T.K. Chakraborty, T.P. Bhattacharyya and M.K. Ghosh (1995).** Mammalia, pp.23-128. In: Director (ed.), *Fauna of Meghalaya; State Fauna Series 4, Part 1*. Zoological Survey of India, Kolkata.
- Dash, P. (2000).** Malayan Tree Shrews *Tupaia glis* (Diard) in Sikkim. *Journal of the Bombay Natural History Society* 97(3): 418.
- Datta, A. (1999).** Pangolin sightings in Western Arunachal Pradesh. *Journal of the Bombay Natural History Society* 96(2): 310.
- Dene, H., M. Goodman and W. Prychodko (1978).** An immunological examination of the systematics of Tupaiodea. *Journal of Mammalogy* 59: 697-706.
- Denys, C., J.C. Gautun, M. Tranier and V. Volobouev (1994).** Evolution of the genus *Acomys* (Rodentia: Muridae) from dental and chromosomal patterns. *Israel Journal of Zoology* 40: 215-246.
- Deraniyagala, P.E.P. (1958).** *Podihik* genus A new shrew. *Amdiministartion Report of the Director of National Museum of Ceylon* (1957), pt. 4 Ed. Sci. Art E: 5.
- Dice, L.R. (1929).** The phylogeny of the Leporidae, with description of a new genus. *Journal of Mammalogy* 10: 340-344.
- Dobson, G.E. (1888).** Description of two new species of Indian Soricidae. *Annals and Magazines of Natural History* 1: 427-429.
- Dolgov, V.A. and R.S. Hoffmann (1977).** Tibetskaya burozubka - *Sorex thibetanus* Kastchenko, 1905 (Soricidae, Mammalia). *Zoological Zhurnal* 46: 1687-1692. [In Russian, Original not seen]
- Easa, P.S., J. Zacharias and P. Padmanabhan (2001).** *Survey of small mammals in Kerala with special reference to Endangered species*. Kerala Forest Research Institute No. 207. Kerala Forest Research Institute, Peechi, Kerala, 34pp.
- Eisenberg, J.F. and G.M. McKay (1970).** An annotated checklist of the recent mammals of Ceylon with keys to the species. *Ceylon Journal of Science, Biological Science* 8: 69-99.
- Ellerman, J.R. (1940).** *The Families and Genera of Living Rodents. Vol. 1. Rodents other than Muridae*. Trustees of the British Museum (Natural History), London, 689pp.
- Ellerman, J.R. (1941).** *The Families and Genera of Living Rodents. Vol. II. Family Muridae*. British Museum (Natural History), London, 690pp.
- Ellerman, J.R. (1947a).** A key to the Rodentia inhabiting India, Ceylon and Burma based on the collections in the British Museum. Part 1. *Journal of Mammalogy* 28: 249-278.
- Ellerman, J.R. (1947b).** A key to the Rodentia inhabiting India, Ceylon and Burma based on the collections in the British

Museum. Part 2. *Journal of Mammalogy* 28: 357-387.

Ellerman, J.R. (1949). *The Families and Genera of Living Rodents. Vol. III. Family Muridae. Appendix II* (Notes on the rodents from Madagascar in the British Museum, and on a collection from the island obtained by Mr. C.S. Webb). British Museum (Natural History), London, 210pp.

Ellerman, J.R. (1961). *The Fauna of India, including Pakistan, Burma and Ceylon: Mammalia, 2nd Edition, Vol. 3; Rodentia (Part 1 & 2).* Zoological Survey of India. Calcutta, India, 1: 1-482; 2: 483-884.

Ellerman, J.R. and T.C.S. Morrison-Scott (1951). *The checklist of Palearctic and Indian Mammals: 1758-1946.* Trustees of the British Museum (Natural History), London, 810pp.

Ellerman, J. R. and T. C. S. Morrison-Scott (1953). Checklist of Palearctic and Indian mammals - amendments. *Journal of Mammalogy* 34: 516-518.

Elliot, O. (1971). Bibliography of the tree shrews 1780-1969. *Primates* 12: 323-414.

Elliot, O.S., M. Wang and D.S. Borgeonkar (1969). Karyological study of *Tupaia* from Thailand. *Journal of Hereditary* 60: 153-157.

Emry, R.J. and R.W. Thorington, Jr. (1982). Descriptive and comparative osteology of the oldest fossil squirrel, *Protosciurus* (Rodentia: Sciuridae). *Smithsonian Contribution to Paleobiology* 47: 1-35.

Feng Zuo-jiang and Kao Yeh-ting (1974). Taxonomic notes on the Tibetan pika and allied species - including a new subspecies. *Acta Zoologica Sinica* 20: 76-88 (in Chinese).

Feng Zuo-jiang and Zheng Chang-lin (1985). Studies on the pikas (genus *Ochotona*) of China - taxonomic notes and distribution. *Acta Theriologica Sinica* 5: 269-290 (in Chinese).

Feng Zuo-jiang, Cai Gui-quan, and Zheng Chang-lin (1986). *The mammals of Xizang. The comprehensive scientific expedition to the Qinghai-Xizang Plateau.* Science Press, Academia Sinica, Beijing, 423pp. (in Chinese). (Original not referred).

Feng Zuo-jian, Cai Gui-quan and Zheng Chang-lin (1986). *Hsi-tsang pu ju lei (Mammals of Tibet).* Science Press, Peiching, 423pp.

Forsyth, C. L. (1899). On fossil and recent Lagomorpha. *Transactions of the Linnean Society of London* 2(7): 433-512.

Frost, D.R., W.C. Wozencraft and R.S. Hoffmann (1991). *Phylogenetic relationships of hedgehogs and gymnures (Mammalia: Insectivora: Erinaceidae).* Smithsonian Contributions to Zoology 518. Smithsonian Institution Press, Washington, 69pp.

Fry, T. B. (1931). Proposed classification of the smaller Indian Field (or jungle) mice. *Journal of the Bombay Natural History Society* 34(4): 916-921.

Ganesh, T. (1997). The Malabar Spiny Dormouse

(*Platacanthomys lasiurus*) in the Kalakad Mundanthurai Tiger Reserve, Tamil Nadu. *Journal of the Bombay Natural History Society* 94: 561.

Gardenfors, U., C. Hilton-Taylor, G.M. Mace and J.P. Rodriguez (2001). The application of IUCN Red List Criteria at regional levels. *Conservation Biology* 15(2): 1206-1212.

Gemmeke, H. and J. Niethammer (1982). Zur Charakterisierung der Waldmäuse (*Apodemus*) Nepals. *Zeitschrift für Säugetierkunde* 47: 33-38.

George, S.B. (1988). Systematics, historical biogeography and evolution of the genus *Sorex*. *Journal of Mammalogy* 69: 443-461.

George, N.J. (1989). On the status of Madras Tree Shrew *Anathana ellioti ellioti*. *Journal of the Bombay Natural History Society* 86(3): 436-437.

Gervais, F.L.P. (1849). Ronguers. In: Dictionnaire Universel d'histoire naturelle. Dirige par M. Ch. D'Orbigny. M.M. Renard, Martinet et Cie, Vol. 11, Paris. pp.198-204. (Original not referred).

Ghose, R.K. (1964). A new rat of the genus *Rattus* Fischer, 1803 (Mammalia: Rodentia) from Darjeeling district, West Bengal. *Proceedings of the Zoological Society of Calcutta* 17: 193-197.

Ghosal, D.K. (1973). Occurrence of *Nesokia indica* in Nepal. *Labdev (B)* 11: 85.

Ghose, R.K. and S.S. Saha (1981). Taxonomic review of the Hodgson's giant flying squirrel, *P. magnificus* (Hodgson) (Sciuridae: Rodentia) with descriptions of a new subspecies from Darjeeling district, West Bengal, India. *Journal of the Bombay Natural History Society* 78: 93-102.

Ghose, R.K. and T.K. Chakraborty (1983). A note on flying squirrels of Darjeeling and Sikkim. *Journal of the Bombay Natural History Society* 80(2): 411.

Ghose, R.K. and T.P. Bhattacharyya (1995a). Mammalia, pp. 93-117. In: Director (ed.), *Fauna of Kanha Tiger Reserve; Fauna of Conservation Areas 7.* Zoological Survey of India, Kolkata.

Ghose, R.K. and T.P. Bhattacharyya (1995b). Mammalia, pp. 93-107. In: Director (ed.), *Fauna of Indravati Tiger Reserve; Fauna of Conservation Areas 6.* Zoological Survey of India, Kolkata.

Ghose, R.K., A.K. Mandal and P.S. Ghose (2004). A contribution to the taxonomy of Indian Five striped Squirrel (*Funambulus pennanti* Wroughton), with description of two new subspecies. *Records of the Zoological Survey of India* 102(3-4): 89-103.

Gidley, J.W. (1912). The lagomorphs an independent order. *Science New Series* 36(922): 285-286.

Goonatilake, W.L.D.P.T.S. de A. (1993). Zoological research in Peak Wilderness Sanctuary. *Newsletter of the Young Zoologists Association of Sri Lanka* 4: 13-16.

Gromov, I.M., D.I. Bibikov, N.I. Kalabukhov and M.N.N.

- Meier (1965).** *Fauna SSSR, Mlekopitayushchie, tom. 3, vyp. 2 (Fauna of the U.S.S.R. Mammals. vol. 3, No. 2).* Nazemnye belich'e (Ground Squirrels). Nauka, Moscow-Leningrad, 467pp. (in Russian).
- Gromov, I. M. and G.I. Baranova (eds.) (1981).** *Katalog mlekopitayushchikh SSSR (Catalog of mammals of the USSR).* Nauka, Leningrad, 456pp. (in Russian).
- Gureev, A.A. (1964).** *Fauna SSSR, Mlekopitayushchie, tom. 3, vyp. 10, Zaitseobraznye (Lagomorpha) (Fauna of the USSR, mammals, vol. 3, pt. 10, Lagomorpha).* Nauka, Moscow-Leningrad, 276pp. (in Russian).
- Harrison, D.L. (1972).** *The Mammals of Arabia.* Ernest Benn Limited, London, Vol 3: 383-670.
- Harrison, D.L. and P.J.J. Bates (1991).** *The Mammals of Arabia, 2nd edition.* Harrison Zoological Museum, Seven oaks, United Kingdom, 354pp.
- Harrison, J. L. (1958).** Chimarrogale hantu a new water shrew from the Malay Peninsula, with a note on the genera Chimarrogale and Crossogale (Insectivora, Soricidae). *Annals and Magazine of Natural History* 13(1): 282-290.
- Harshey, D.K. and K. Chandra (2001).** Mammals of Madhya Pradesh and Chhattisgarh. *Zoos' Print Journal* 16(12): 659-668.
- Hassinger, J.D. (1973).** A survey of the mammals of Afghanistan resulting from the 1965 Street Expedition (excluding bats). *Fieldiana Zoology* 60: 1-195.
- Heaney, L.R. (1985).** Systematics of Oriental pygmy squirrels of the genera *Exilisciurus* and *Nannosciurus* (Mammalia: Sciuridae). *Miscellaneous Publications of the Museum of Zoology, University of Michigan*, 170: 58pp+iv.
- Hinton, M.A.C. (1926).** *Monograph of the Voles and Lemmings (Microtinae) Living and Extinct.* British Museum (Natural History), London, 488pp.
- Hoffmann, R.S. (1986).** A review of the genus *Soriculus* (Mammalia: Insectivora). *Journal of the Bombay Natural History Society* 82: 459-481.
- Hoffmann, R.S. (1987).** A review of the systematics and distribution of Chinese red-toothed shrews (Mammalia: Soricinae). *Acta Theriologica Sinica* 7: 100-139.
- Hoffmann, R.S. (1993).** Family Lagomorpha, pp.807-827. In: Wilson, D.E. and D.M. Reeder (ed.), *Mammal species of the World: A taxonomic and geographic reference.* Smithsonian Institution Press. Washington, D.C., 1206pp.
- Hoffmann, R.S., C.G. Anderson, R.W. Thorington Jr. and L.R. Heaney (1993).** Family Sciuridae, pp. 419-465. In: Wilson, D.E. and D.M. Reeder (eds.) *Mammal species of the World: A taxonomic and geographic reference.* Smithsonian Institution Press. Washington, D.C., 1206pp.
- Holden, M.E. (1993a).** Family Dipodidae, pp.487-500. In: Wilson, D.E. and D.M. Reeder (editors). *Mammal Species of the World: A Taxonomic and Geographic Reference. 2nd edition,* Smithsonian Institution Press, Washington D.C., 1206pp.
- Holden, M.E. (1993b).** Family Myoxidae, pp.763-770. In: Wilson, D.E. and D.M. Reeder (editors). *Mammal Species of the World: A Taxonomic and Geographic Reference. 2nd edition,* Smithsonian Institution Press, Washington D.C., 1206pp.
- Holden, M.E. (1996).** Description of a new species of *Dryomys* (Rodentia, Myoxidae) from Balochistan, Pakistan, including morphological comparisons with *Dryomys laniger* Felten & Storch, 1968, and *D. nitedula* (Pallas, 1778). *Zoologische Beiträge* 46(1-4): 111-131.
- Hutterer, R. (1979).** Verbreitung und systematik von *Sorex minutus* Linnaeus, 1766 (Insectivora: Soricidae) im Nepal-Himalaya und angrenzenden gebieten. *Zeitschrift für Säugetierkunde* 44: 65-80.
- Hutterer, R. (1993).** Family Insectivora, pp. 69-130. In: Wilson, D.E. and D.M. Reeder (eds.), *Mammal species of the World: A taxonomic and geographic reference.* Smithsonian Institution Press. Washington, D.C., 1206pp.
- Illiger, C. (1811).** *Prodromas systematis mammalium et avium additri terminus zoographics utriudque classis.* Salfeld, Berlin, 301pp+xviii. (Original not referred).
- Ingles, J. M., P.N. Newton, M.R.W. Rands and C.G.R. Bowden (1980).** The first record of a rare murine rodent *Diomys* and further records of three shrew species from Nepal. *Bulletin of the British Museum (Natural History), Zoology Series* 39: 205-211.
- IUCN (1995).** *Eurasian Insectivores and Tree Shrews: Status survey and Conservation Action Plan.* (Compiled and Edited by R. Davidstone). IUCN, Gland, Switzerland, 164pp+vii.
- IUCN, WCMC and FAO (1997).** *Designing an optimum protected areas system for Sri Lanka's natural forests.* IUCN/WCMC/FAO, Colombo, Sri Lanka.
- IUCN (2001).** *IUCN Red List Categories and Criteria: Version 3.1.* IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK, 30pp+ii.
- IUCN (2003).** *Guidelines for Application of IUCN Red List Criteria at Regional Levels: Version 3.0.* IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK. ii+26 pp.
- Jameson, E.W. and G.S. Jones (1977).** The Soricidae of Taiwan. *Proceedings of the Biological Society of Washington* 90: 459-482.
- Jayson, E.A. and G. Christopher (1995).** Sighting of Spiny Dormouse *Palatacanthomys lasiurus* Blyth, 1859 in Peppera Wildlife Sanctuary, Trivandrum district, Kerala. *Journal of the Bombay Natural History Society* 92: 58.
- Jenkins, P.D. (1976).** Variation in Eurasian shrews of the genus *Crocidura* (Insectivora: Soricidae). *Bulletin of the British Museum (Natural History), Zoology Series* 30: 271-309.
- Jerdon, T.C. (1874).** *The Mammals of India: Natural History.* John Wheldon, London, 335pp.
- Johnson, S.D., S.D. Ripley and K. Thonglongya (1980).** Mammals from Nepal. *Journal of the Bombay Natural History Society* 77: 56-62.

- Jones, G.S. and R.E. Mumford (1971).** Chimarrigale from Taiwan. *Journal of Mammalogy* 52: 228-232.
- Kankane, P.L. (2004).** Mammalia, pp.1-135. In: Director, ZSI (ed.), *Fauna of Desert National Park - A proposed Biosphere Reserve*. Zoological Survey of India, Kolkata.
- Karunaratne, P.B. (1974).** Random notes on mammals and birds of Kanneliya Jungle. *Loris* 13(3): 164-168.
- Karunaratne, P.B. (1989).** Small Mammal Survey - Udawalawe National park - Preliminary Report. *Special Scientific Publication series of WNOS of Sri Lanka* 1(1): 1-38. (with E.D. Wickramanayake)
- Karunaratne, P.B. (1992).** Fauna of the Samanlawewa Area. *Special Scientific Publication series of WNOS of Sri Lanka* 1(2): 1-63.
- Kawamichi, T. (1971).** Daily activities and social pattern of two Himalayan pikas, *Ochotona macrotis* and *O. roylei*, observed at Mt. Everest. *Journal of the Faculty of Hokkaido University, Japan, series 6 (Zoology)* 17: 587-609.
- Khan, M.A.R. (1982).** *Wildlife of Bangladesh - A checklist*. Dhaka University, Dhaka, Bangladesh. 174pp+iv.
- Kloss, C.B. (1918).** Notes on some hares in the Indian Museum with description of two new forms. *Records of the Indian Museum* 15: 89-96.
- Koffler, B.R. (1972).** *Meriones crassus*. *Mammalian Species* 9: 1-4.
- Kumar, A. and S.D. Pandey (1994).** Notes on the Large-eared Hedgehog, *Hemiechinus auritus* Gmelin. *Journal of the Bombay Natural History Society* 91(3): 445-446.
- Kurup, G.U. (1968).** Mammals of Assam and adjoining areas. 2. A distributional list. *Proceedings of the Zoological Society (Calcutta)* 21: 79-99.
- Kurup, G.U. (1989).** Rediscovery of small Travancore Flying Squirrel. *Oryx* 23: 2-3.
- Lay, D.M. (1983).** Taxonomy of the genus *Gerbillus* (Rodentia: Gerbillinae) with comments on the applications of generic and subgeneric names and an annotated list of species. *Zeitschrift für Säugetierkunde* 48: 329-354.
- Lay, D.M. and C.F. Nadler (1975).** A study of *Gerbillus* (Rodentia: Muridae) east of the Euphrates River. *Mammalia* 39: 423-445.
- Lilljeborg, W. (1866).** *Systematisk öfversigt af de gnagande dägdjurden, Glires*. Kongl. Akad. Boktryckeriet, Uppsala, 59pp+2pls. (Original not referred).
- Lim, B.K. and P.D. Ross (1992).** Taxonomic status of *Alticola* and new record of *Cricetulus* from Nepal. *Mammalia* 56: 300-302.
- Lindsay, H.M. (1929).** Indian Shrews. *Journal of the Bombay Natural History Society* 33: 326-340.
- Linnaeus, C. (1758).** *Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis*. 10th ed. Vol. 1. Laurentii Salvii, Stockholm, 824pp.
- Luckett, W.P. (editor) (1980).** *Comparative Biology and Evolutionary Relationships of Tree Shrews*. Plenum Press, New York, 314pp.
- Lunde, D.P., G.G. Musser and N.T. Son (2003).** A survey of small mammals from Mt. Tay Con Linh II, Vietnam, with a description of a new species of Chodsigoa (Insectivora: Soricidae). *Mammal Study* 28: 31-46.
- Lyon, M. W. (1904).** Classification of the hares and their allies. *Smithsonian Miscellaneous Collections* 45: 321-447.
- Lyon, M.W. Jr. (1913).** Tree Shrews: an account of the mammalian family Tupaiidae. *Proceedings of the United States National Museum* 45: 1-188.
- Mandal, A.K., A.K. Poddar and T.B. Bhattacharyya (2000).** Some new records of rodents from Mizoram, India. *Records of the Zoological Survey of India* 98(1): 131-135.
- Mandal, A.K., A.K. Poddar and T.B. Bhattacharyya (2004).** Mammalia. In: Director (ed.), *Fauna of Manipur; State Fauna Series, Part 1*. Zoological Survey of India, Kolkata.
- Mandal, A.K., A.K. Poddar and T.B. Bhattacharyya (in press).** Mammalia. In: Director (ed.), *Fauna of Mizoram; State Fauna Series, Part 1*. Zoological Survey of India, Kolkata.
- Marshall, J.T., Jr. (1977a).** Family Muridae: Rats and mice, pp.396-487. In: Lekagul, B. and J.A. McNeely (eds.) *Mammals of Thailand*. Association for the Conservation of Wildlife, Sahakarnbhat Co., Bangkok, 758pp.
- Marshall, J.T., Jr. (1977b).** A synopsis of Asian species of Mus (Rodentia, Muridae). *Bulletin of the American Museum of Natural History* 158: 173-220.
- Marshall, J.T., Jr. (1986).** Systematics of the genus Mus, pp.12-18. In: Potter, M., J.H. Nadeau and M.P. Cancro (eds.) *The Wild Mouse in Immunology: Current Topics in Microbiology and Immunology* 127: 1-395.
- McKenna, M.C. (1962).** Eupetaurus and the living petauristine sciurids. *American Museum Novitates* 2104: 38.
- Meena, V. (1999).** *Distribution of small mammals in Mudumalai Wildlife Sanctuary, Tamil Nadu*. Unpublished M.Sc. Dissertation submitted to Pondicherry University, Pondicherry.
- Meena, V. (2001).** The Malabar Spiny Dormouse *Platacanthomys lasiurus* in Mudumalai Wildlife Sanctuary, Tamil Nadu. *Journal of the Bombay Natural History Society* 98(3): 438-439.
- Miller, G.S., Jr. (1896).** The genera and subgenera of Voles and Lemmings. *North American Fauna* 12: 1-84.
- Miller, G.S. (1902).** The mammals of the Andaman and Nicobar Islands. *Proceedings of the US National Museum* 24: 751-795.
- Miller, G.S. (1913).** A new shrew from Baltistan. *Proceedings of the Biological Society of Washington* 26: 113-114.

- Mishra, A.C. (1981).** The hoplopleurid lice of the Indian Subcontinent (Anoplura: Hoplopeuridae). *Records of the Zoological Survey of India. Miscellaneous Publication, Occasional Paper No. 21:* 1-128.
- Mishra, C., A. Datta and M.D. Madhusudhan (2004).** *The high altitude wildlife of western Arunachal Pradesh: a survey report.* DERC Technical report No. 8.
- Misonne, X. (1969).** African and Indo-Australian Muridae: Evolutionary trends. *Annales of the Museum Royal de l'Afrique Centrale, Tervuren, Belgique, Serie IN-8, Sciences Zoologiques* 172: 1-219.
- Mitchell, R.M. (1975).** A checklist of Nepalese mammals (excluding bats). *Säugetierkundliche Mitteilungen* 23: 152-157.
- Mitchell, R.M. (1978).** The Ochotona (Lagomorpha: Ochotonidae) of Nepal. *Säugetierkundliche Mitteilungen* 26: 208-214.
- Mitchell, R.M. (1979).** The Sciurid rodents (Rodentia: Sciuridae) of Nepal. *Journal of Asian Ecology* 1: 21-28.
- Mitchell, R.M. (1981).** The Ochotona (Lagomorpha: Ochotonidae) of Asia, pp.1031-1038. In: Liu D. (editor), *Geological and ecological studies of Qinghai-Xizang plateau.* Science Press, Academia Sinica, Beijing, 2 volumes. (Original not referred).
- Mitra, S. (1998).** On the scales of the Scaly Anteater *Manis crassicaudata*. *Journal of the Bombay Natural History Society* 95(3): 495-498.
- Mittermeier, R.A., N. Myers, P.R. Gil and C.G. Mittermeier (1999).** *Hotspots: Earths Biologically Richest and Most Endangered terrestrial Ecoregions.* CEMEX / Conservation International, Mexico City, 430pp.
- Molur, S., P.O. Nameer, and S. Walker (eds.) (1998).** Report of the Workshop "Conservation Assessment and Management Plan for Mammals of India" (BCCP - Endangered Species Project), Zoo Outreach Organisation, Conservation Breeding Specialist Group, India, Coimbatore, India, 176pp.
- Moore, J.C. (1956).** A new subspecies of an Oriental squirrel *Dremomys lokriah*. *American Museum Novitates* 1816: 2.
- Moore, J.C. (1958a).** New striped tree squirrels from Burma and Thailand. *American Museum Novitates* 1879: 6.
- Moore, J.C. (1958b).** New genera of East Indian squirrels. *American Museum Novitates* 1914: 1-5.
- Moore, J.C. (1959).** Relationships among the living squirrels of the Sciurinae. *Bulletin of the American Museum of Natural History* 118(4): 157-206.
- Moore, J.C. (1960).** Squirrel geography of the Indian subregion. *Systematic Zoology* 9: 1-17.
- Moore, J.C. and G.H.H. Tate (1965).** A study of the diurnal squirrels, Sciurinae, of the Indian and Indo-Chinese subregions. *Fieldiana Zoology* 48: 1-351.
- Mudappa, D., A. Kumar and R. Chellam (2001).** Abundance and habitat selection of the Malabar spiny dormouse in the rainforests of the southern Western Ghats, India. *Current Science* 80(3): 424-427.
- Musser, G.G. (1970).** Species-limits of *Rattus brahma*, a murid rodent of Northeastern India and Northern Burma. *American Museum Novitates* 2406: 1-27.
- Musser, G.G. (1973).** Species-limits of *Rattus cremoriventer* and *Rattus langbianis*, murid rodents of Southeast Asia and the Greater Sunda Islands. *American Museum Novitates* 2525: 1-65.
- Musser, G.G. (1979).** Results of the Archbold Expeditions. No.102. The species of Chiropodomys, arboreal mice of Indochina and the Malay Archipelago. *Bulletin of the American Museum of Natural History* 162: 377-445.
- Musser, G. G. (1981).** Results of the Archbold Expeditions. No.105. Notes on systematics of Indo-Malayan murid rodents, and descriptions of new genera and species from Ceylon, Sulawesi, and the Philippines. *Bulletin of the American Museum of Natural History* 168: 225-334.
- Musser, G.G. and M.D. Carleton (1993).** Family Muridae, pp.501-756. In: Wilson, D.E and D.M. Reeder (eds), *Mammal Speices of the World: A Taxonomic and Geographic Reference.* Smithsonian Institution Press. Washington D.C., 1206pp.
- Musser, G.G. and C. Newcomb (1983).** Malaysian murids and the giant rat of Sumatra. *Bulletin of the American Museum of Natural History* 174: 327-598.
- Musser, G.G. and L.R. Heaney (1985).** Philippine Rattus: A new species from the Sulu Archipelago. *American Museum Novitates* 2818: 1-32.
- Nalinda, M.A.K. (1990).** Zoological exploratio of the Horton Plains. *Newsletter of of the Young Zoologists' Association of Sri Lanka* 6: 5-6.
- Nameer, P.O. (1998).** *Checklist of Indian Mammals.* Kerala Forest Department (Wildlife Wing) and Kerala Agriculture University, 90pp+xxv.
- Napier, J.R. and P.H. Napier (1967).** *A Handbook of Living Primates.* Academic Press, London, 456pp.
- Niethammer, J. (1973).** Zur Kenntnis der Igel (Erinaceidae) Afghanistans. *Zeitschrift für Säugetierkunde* 38: 271-276 (Original not seen).
- Niethammer, J. and J. Martens (1975).** Die Gattungen Rattus und Maxomys in Afghanistan und Nepal. *Zeitschrift für Säugetierkunde* 40: 325-355.
- Nowak, R.M. (1999).** *Walker's Mammals of the World, 6th edition Vol. 1&2.* The John Hopkins University Press, Baltimore and London. Vol.1: 836pp+lx & Vol.2: 837-1936pp+xi.
- Omaston, B.B. (1950).** The large red flying squirrel - *Pteromys inornatus* Geoffroy. *Journal of the Bombay Natural History Society* 49: 114-115.
- Osgood, W.H. (1932).** Mammals of the Kelley-Roosevelts and Delacour Asiatic expeditions. *Field Museum of Natural History,*

Zoological Series 18: 193-339.

Pasha, M.K.S. and I. Suhail (1997). Range extension of the Kashmir Flying Squirrel (*Hylopetes fimbriatus* Gray). *Journal of the Bombay Natural History Society* 94: 395-396.

Pavlinov, I.Y. (1980). Superspecies groupings in the subfamily Cardiocraniinae Saturnin (Mammalia, Dipodidae). *Vestnik Zoologii* 2: 47-51 (in Russian).

Pavlinov, I.Y. and O.L. Rossolimo (1987). *Systematics of the mammals of the USSR*. Moscow University Press, Moscow, 282pp. (in Russian).

Petter, F. (1963). Un nouvel insectivore du nord de l'Assam: Anourosorex squamipes schmidi nov. sbsp. *Mammalia* 27: 444-445.

Petter, J.J. and A. Petter-Rousseaux (1979). Classification of Prosimians, pp.1-44. In: Boyle, G.A. and R.D. Martin (editors). *The Study of Prosimian Behaviour*. Academic Press, London, 696pp.

Phillips, C.J. (1969). Review of central Asian voles of the genus *Hyperacrius*, with comments zoogeography, ecology and ectoparasites. *Journal of Mammalogy* 50: 457-474.

Phillips, W.W.A. (1932). Additions to the fauna of Ceylon. *Spolia Zeylanica* 16: 323-327.

Phillips, W.W.A. (1935). *Manual of the Mammals of Ceylon*. Colombo Museum, Ceylon.

Phillips, W.W.A. (1980). *Manual of the Mammals of Sri Lanka*. Second Revised Edition. Wildlife and Nature Protection Society of Sri Lanka, Colombo, Sri Lanka, Vol. 1: 1-116pp.

Phillips, W.W.A. (1981). *Manual of the Mammals of Sri Lanka*. Second Revised Edition. Wildlife and Nature Protection Society of Sri Lanka, Colombo, Sri Lanka, Vol. 2: 117-267pp.

Pocock, R.I. (1923). The classification of Sciuridae. *Proceedings of the Zoological Society of London* 1923(1): 209-246.

Pocock, R.I. (1924). External characters of the Pangolins, Manidae. *Proceedings of the Zoological Society of London* 1924: 707-723.

Posamentier, H. (1989). *Rodents in Agriculture. A review of findings in Bangladesh*. Deutsche Gesellschaft für Technische Zusammenarbeit, Eschborn, 107pp.

Prabhakar, A. (1997). New records of the Malabar spiny dormouse (*Platacanthomys lasiurus* Blyth) in the Indira Gandhi Wildlife Sanctuary, Tamil Nadu. *Journal of the Bombay Natural History Society* 94(1): 151-152.

Pradhan, M.S. (1975). *Studies of Bombay Rats*. Ph.D. Thesis. Bombay University, Mumbai.

Pradhan, M.S. (1979). Application of some biochemical methods in bandicoot taxonomy. *Journal of the Bombay Natural History Society* 76(1): 59-65.

Pradhan, M.S. (1997). Qualitative analysis of vertebrate fauna from Wardha river basin. *Journal of the Bombay Natural History*

Society 94(1): 71-103.

Pradhan, M.S. (2002). Mammalia, pp.79-97. In: Director (ed.), *Fauna of Eravikulam National Park; Fauna of Conservation Areas 13*. Zoological Survey of India, Kolkata.

Pradhan, M.S. and G.U. Kurup (2001). Mammalia, pp.311-330. In: Director (ed.), *Fauna of Nilgiri Biosphere Reserve; Fauna of Conservation Areas 11*. Zoological Survey of India, Kolkata.

Pradhan, M.S. and M. Mithel (1981). White patch and its genetic control in some of the Indian rodent species. *Journal of the Bombay Natural History Society* 78(1): 164-165.

Pradhan, M.S. and R.P. Hemkar (1986). Present status of the European commensal Black Rat, *Rattus rattus rattus* (Lin.) in Bombay. *Journal of the Bombay Natural History Society* 83(2): 422-423.

Pradhan, M.S., A.K. Mondal, A.M. Bhagwat and V.C. Agrawal (1993). Taxonomic studies on Indian Bandicoot rats (Rodentia: Muridae: Murinae) with description of a new species. *Records of the Zoological Survey of India* 93(1-2): 175-200.

Pradhan, M.S., A.K. Mondal and A.M. Bhagwat (2005). On taxonomic status of *Bandicota bengalensis lordi* (Wroughton) and *Bandicota maxima* (Pradhan et al.) (Subfamily: Murinae; Family: Muridae; Order: Rodentia). *Records of the Zoological Survey of India* 104(1-2): 85-90.

Pradhan, M.S., A.K. Mondal and V.C. Agrawal (1989). Proposal of an additional species in the genus *Bandicota* Gray (order: Rodentia; fam: Muridae) from India. *Mammalia* 53(3): 369-376.

Pradhan, M.S., R.M. Sharma and Karthik Shankar (1997). First record of Kelaart's long-clawed shrew, *Feroculus feroculus* (Kelaart) (Insectivora, Soricidae, Crocidurinae) from peninsular India. *Mammalia* 61(3):448-450.

Prasad, M.R.N. (1957). Male genital tract of the Indian and Ceylonese palm squirrels and its bearing on the systematics of the Sciuridae. *Acta Zoologica* 38: 1-26.

Rajagopalan, P.K. (1968). Notes on the Malabar Spiny Dormouse, *Platacanthomys lasiurus* Blyth, 1859 with new distribution record. *Journal of the Bombay Natural History Society* 65: 214-215.

Rajamani, N. (2001). *The status and distribution of the Small Travancore Flying Squirrel (Petinomys fuscoapillus) and the Large Brown Flying Squirrel (Petaurista philippensis)*. Final Technical report. SACON. Coimbatore, India, 63pp.

Raman, R. and T. Sharma (1977). Karyotype evolution and speciation in Genus *Rattus*. *Journal of Science and Industrial Research* 36(8): 385-404.

Ramchandran, K.K. (1989). Chinnar Wildlife Sanctuary - Home of the endangered Grizzled Giant Squirrel. Report published by the Division of Wildlife Biology, Kerala Forest Research Institute, Peechi, pp.9-11.

Ranasinghe, P.N. and C.V. Senaratne (1994). Life at Horton Plains. *Newsletter of the Young Zoologists' Association of Sri Lanka* 2(4): 1-8.

- Ranwella, S.P. (1995).** *A checklist of vertebrates of Bolgoda Lake area.* Young Zoologists' Association of Sri Lanka, 88pp.
- Rao, S.K. and N.V. Aswathanarayana (1978).** On the occurrence of Horsfield's Shrew *Crocidura horsfieldii* (Tomes) in peninsular India. *Journal of the Bombay Natural History Society* 75: 473.
- Repenning, C.A. (1967).** Subfamilies and genera of the Soricidae. *Geological Survey Professional Paper* 565: 1-74.
- Ritschard, M. (2003).** RFI Namdapha Flying Squirrel. Email message submitted to orientalbirding@yahoo.com from locustella @student.unibe.ch, dated Tuesday, August 12, 2003 2:26PM.
- Roberts, T. and J. Viellard (1971).** Commentaires sur le Grand Pangolin Indien *Manis crassicaudata*. *Mammalia* 35(4): 610-613.
- Roberts, T.J. (1997).** *The Mammals of Pakistan.* Oxford University Press, Karachi, Pakistan, 525pp.
- Roberts, T.J. (1999).** Rediscovery of the Afghan Mole *Ellobius fuscocapillus* in Pakistan. *Journal of the Bombay Natural History Society* 96: 134-139.
- Robinson, H.C. and C.B. Kloss (1918).** A nominal list of the Sciuridae of the Oriental Region with a list of specimens in the collection of the Zoological Survey of India. *Records of the Indian Museum* 15(4), no. 21: 171-254.
- Robinson, H.C. and R.C. Wroughton (1911).** Notes on Indo-Malayan squirrels. *Journal of the Federation of Malay States Museum* 7: 166-168.
- Roonwal, M.L. (1948).** Three new Muridae (Mammalia: Rodentia) from Assam and the Kabaw Valley, Upper Burma. *Proceedings of the National Institute of Science, India* 14: 385-387.
- Roonwal, M.L. (1949).** Systematics, ecology and bionomics of mammals studied in connection with Teutsugamushi Disease (Scrub Typhus) in the Assam Burma War Theatre during 1945. *Transactions of the National Institute of Science, India* 3: 67-122.
- Roonwal, M.L. (1950).** Contributions to the fauna of Manipur State, Assam. Part III – Mammals, with special reference to the Family Muridae (Order Rodentia). *Records of the Indian Museum* 47(1): 1-64.
- Roonwal, M.L. and B. Biswas (1960).** Additions, pp.853-867. In: Ellerman, J.R. *The fauna of India including Pakistan, Burma and Ceylon. Mammalia, Rodentia.* Volume 3 (in 2 parts). 2nd edition. Manager of Publications, Zoological Survey of India, Calcutta, (published in 1961).
- Roy, C.R. (1949).** The Indian Pangolin. *Journal of the Bengal Natural History Society* 23: 95-98.
- Saha, S.S. (1977).** A new subspecies of the flying squirrel *Petaurista nobilis* (Gray) from Bhutan. *Proceedings of the Zoological Society of Calcutta* 28(1975): 27-29.
- Saha, S.S. (1980).** Notes on some mammals recently collected from Andaman and Nicobar Islands. *Records of the Zoological Survey of India* 77: 119-126.
- Saha, S.S. (1981).** A new genus and a new species of flying squirrel (Mammalia: Rodentia: Sciuridae) from northeastern India. *Bulletin of the Zoological Survey of India* 4: 331-336.
- Sarker, Md.S. and N.J. Sarker (1988).** *Wildlife of Bangladesh: A systematic list.* Rico Printers, Dhaka, Bangladesh
- Schmitter, D.A. (1993).** Order Pholidota, pp.415. In: Wilson, D.E. and D.M. Reeder (eds.) *Mammal Species of the World: A Taxonomic and Geographic Reference. 2nd edition,* Smithsonian Institution Press, Washington, D.C., 1206pp.
- Schaub, S. (1953).** Remarks on the distribution and classification of the "Historicomorpha". *Verhandlungen naturforschenden Gesellschaft Basel* 64: 389-400.
- Schmitter, D.A. and K. Thonglongya (1971).** *Rattus turkestanicus* (Satunin, 1903), the valid name for *Rattus rattoides* Hodgson, 1845 (Mammalia: Rodentia). *Proceedings of the Biological Society of Washington* 84:171-174.
- Schwarz, E. (1939).** On mountain-voles of the genus *Alticola* Blanford: a taxonomic and genetic analysis. *Proceedings of the Zoological Society of London, Series B* 108: 663-668.
- Sclater, W.L. (1891).** *Catalogue of the Mammalia in the Museum of Asiatic Society. Part II.* Calcutta.
- Shankar, K. (1996).** Islands in the Western Ghats. *Science Reporter* 33(6): 9-33.
- Sharma, S.K. (2002).** Abnormal weight and length of the Indian pangolin *Manis crassicaudata* Gray, 1827, from Sirohi district Rajasthan. *Journal of the Bombay Natural History Society* 99(1): 103-104.
- Sharma, S.K. (2005).** Presence of Indian Palm Squirrel *Funambulus palmarum* Linnaeus in South Aravallis. *Zoos' Print Journal* 20(6): 1908-1909.
- Shenbrot, G.I. (1984).** Dental morphology and phylogeny of five-toed jerboas of the subfamily Allactaginae. *Sbornik Trudov Zoologicheskovo Museya MGU* 22: 61-92 (in Russian).
- Shenbrot, G.I. (1992).** Cladistic approach to the analysis of phylogenetic relationships among dipodoid rodents (Rodentia, Dipodoidea). *Sbornik Trudov Zoologicheskovo Muzeya MGU* 29: 176-201 (in Russian).
- Shomen Mukherjee (1999).** *Habitat use by three species of rodents in Sam, Thar dessert.* Unpublished M.Sc. Dissertation submitted to Wildlife Institute of India, Dehradun.
- Shrestha, T.K. (1997).** *Mammals of Nepal.* Published by Mrs Bimala Shrestha. Kathmandu, Nepal, 371pp+xvii.
- Shrivastava, R.J. (1995).** Sighting of the Indian tree shrew *Anathana ellioti* at Bori Wildlife Sanctuary. *Journal of the Bombay Natural History Society* 92(3): 410-411.
- Simpson, G.G. (1945).** The principles of classification and a classification of mammals. *Bulletin of the American Museum of Natural History* 85: 1-350.

- Singh, H.S. (1998).** *Wildlife of Gujarat*. Gujarat Environmental Education and Research Foundation, Gandhinagar, Gujarat, India.
- Singh, K.D. (1994).** The Indian Pangolin *Manis crassicaudata* Gray near Delhi. *Journal of the Bombay Natural History Society* 91(2): 309.
- Smith, A.T., N.A. Formozov, Chan-lin Zheng, M. Erbaeva and R. S. Hoffmann (1990).** *The pikas*, pp.14-60. In: Chapman, J.A. and J.E.C. Flux (editors) *Rabbits, Hares and Pikas*. I.U.C.N., Gland, Switzerland, 168pp.
- Sokolov, V.E. and V.N. Orlov (1980).** *Opredelitel' mlekopitayushchikh Mongol'skoi Narodnoi Respubliki (Guide to the mammals of the Mongolian People's Republic)*. Nauka, Moscow, 351pp. (in Russian).
- Srinivasulu, C. and Bhargavi Srinivasulu (2004).** Checklist of scandents and pholidots (Mammalia: Scandentia and Pholidota) of South Asia. *Zoos' Print Journal* 19(2): 1372-1374.
- Srinivasulu, C. and M.J.R. Jordan (2004).** Checklist of Dipodids, Myoxids and Hystricids (Mammalia: Dipodidae, Myoxidae and Hystricidae) of South Asia. *Zoos' Print Journal* 19(2): 1346-1350.
- Srinivasulu, C. and M.S. Pradhan (2003).** Checklist of murids (Mammalia: Rodentia: Muridae) of South Asia. *Zoos' Print Journal* 18(12): 1286-1310.
- Srinivasulu, C. and V. Nagulu (2002).** Mammalian and avian diversity of the Nallamala Hills, Andhra Pradesh. *Zoos' Print Journal* 17(1): 675-684.
- Srinivasulu, C., Bhargavi Srinivasulu, A. Rajesh, C.A.N. Rao and V. Nagulu (2004).** Non-volant small mammals of Kasu Brahmananda Reddy National Park, Andhra Pradesh. *Zoos' Print Journal* 19(6): 1495-1497.
- Srinivasulu, C., Bhargavi Srinivasulu, S. Chakraborty, M.S. Pradhan and P.O. Nameer (2004).** Checklist of lagomorphs (Mammalia: Lagomorpha) of South Asia. *Zoos' Print Journal* 19(2): 1375-1380.
- Srinivasulu, C., S. Chakraborty and M.S. Pradhan (2004).** Checklist of sciurids (Mammalia: Rodentia: Sciuridae) of South Asia. *Zoos' Print Journal* 19(2): 1351-1360.
- Spillet, J.J. (1968).** *The ecology of the Lesser Bandicoot Rat in Calcutta*. D.Sc. Thesis published by Bombay Natural History Society, Bombay.
- Stein, B.R. (1990).** Limb myology and phylogenetic relationships in the superfamily Dipodoidea (birch mice, jumping mice, and jerboas). *Zeitschrift für Zoologische Systematik und Evolutionsforschung* 28: 299-314.
- Sterndale, R.A. (1884).** *Natural history of Mammalia of India and Ceylon*. Thacker, Spink & Co., Calcutta, 263pp.
- Taber, R. D., A.N. Sheri and M.S. Ahmad (1967).** Mammals of the Layallpur region - West Pakistan. *Journal of Mammalogy* 48(3): 329-407.
- Tak, P.C. (1997).** Mammalia, pp.151-161. In: Director (ed.), *Fauna of Nanda Devi Biosphere Reserve; Fauna of Conservation Areas 9*. Zoological Survey of India, Calcutta.
- Tak, P.C. and B.S. Lamba (1984).** Field observations on abundance of smaller mammals of Nanda Devi National Park. *Indian Journal of Forestry* 7(3): 242-244.
- Tehsin, R.H. (1980).** Occurrence of the Large Brown Flying Squirrel and Mouse Deer near Udaipur, Rajasthan. *Journal of the Bombay Natural History Society* 77(3): 498.
- Tehsin, R.H. (1981).** Occurrence of the large brown flying squirrel and mouse deer near Udaipur, Rajasthan. *Journal of the Bombay Natural History Society* 77: 498.
- Thomas, O. (1908).** The genera and subgenera of Sciuropterus group. *Annals of the Magazine of Natural History* 8(4): 542-549.
- Thomas, O. (1913).** A new shrew from the Andaman Islands. *Annals and Magazines of Natural History* 11: 468-469.
- Thomas, O. (1915).** The penis bone or 'baculum' as a guide to classification of certain squirrels. *Annals of the Magazine of Natural History* 15(8): 383-387.
- Thomas, O. (1922).** On some new forms of *Ochotona*. *Annals and Magazines of Natural History* 9: 187-193.
- Tiwari, S.K., Alfred, J.R.B. and S.K. Dutta (2002).** *Vertebrate fauna of Chandaka-Dampara Wildlife Sanctuary*. Zoological Survey of India, Kolkata, 126pp+vi..
- Umamathy, G.U. and A. Kumar (2000).** The occurrence of arboreal mammals in the rainforest fragments in the Anamalai Hills, South India. *Biological Conservation* 92: 311-319.
- van Valen, L. (1967).** New Paleocene insectivores and insectivore classification. *Bulletin of the American Museum of Natural History* 135: 217-284.
- Verheught, W.J.M. (1995).** *Enumeration of Mammals of Nepal*. Technical Publication No. 6. Biodiversity profiles project. Euroconsult, HMG and Government of Netherlands.
- Vinogradov, B.S. (1925).** On the structure of the external genitalia in Dipodidae and Zapodidae (Rodentia) as a classificatory character. *Proceedings of the Zoological Society of London* 1925(1): 572-585.
- Vinogradov, B.S. (1937).** *Fauna of the USSR; Mammals, vol. 3, pt. 4. Jerboas.*, 196pp. (in Russian).
- Vorontsov, N.N. and E.G. Potapova (1979).** Taxonomy of the genus *Calomyscus* (Cricetidae). 2. Status of *Calomyscus* in the system of Cricetinae. *Zoologicheskii Zhurnal* 58: 1391-1397 (in Russian).
- Vorontsov, N.N. and E.Yu. Ivanitskaya (1973).** Comparative karyology of north Palaearctic pikas (*Ochotona*, *Ochotonidae*, *Lagomorpha*). *Caryologia* 26: 213-223.
- Vorontsov, N.N., I.V. Kartavtseva and E.G. Potapova (1979).** Systematics of the genus *Calomyscus* (Cricetidae). 1. Karyological differentiation of the sibling species from Transcaucasia and Turkmenia and a review of species of the genus *Calomyscus*.

- Zoologicheskii Zhurnal 58: 1213-1224 (in Russian).
- Vyas, R. (2002).** Some observations on Long-eared and Pale hedgehogs in Gujarat. *Zoos' Print Journal* 17(8): 857.
- Waterhouse, G.R. (1842).** Observations on the Rodentia. *Annals and Magazine of Natural History* 1(10): 197-203, 344-347.
- Webb-Peploe, C.G. (1947).** Field notes on mammals of south Tinnevely, South India. *Journal of the Bombay Natural History Society* 46: 633.
- Weigel, I. (1969).** Systematische Übersicht über die Insektenfresser und Nager Nepals nebst Bemerkungen zur Tiergeographie. *Ergebnisse der Forschungsunternehmens Nepal Himalaya* 3: 149-196.
- Weston, M.L. (1982).** A numerical revision of the genus *Ochotona* (Lagomorpha: Mammalia) and an examination of its phylogenetic relationships. Unpublished. Ph. D. dissertation, University of British Columbia, Vancouver, 387pp. (Original not referred).
- Wilson and Reeder (In press).** *Checklist of World Mammals*. 3rd Edition.
- Woods, C.A. (1993).** Suborder *Hystricognathi*, pp.771-806. In: Wilson, D.E. and D.M. Reeder (editors). *Mammal Species of the World: A Taxonomic and Geographic Reference*. 2nd edition, Smithsonian Institution Press, Washington, D.C., 1206pp.
- Woods, C.A. and C.W. Kilpatrick (1997).** Biodiversity of small mammals in the mountains of Pakistan (high or low?), pp. 437-467. In: Mufti, S.A., C.A. Woods and S.A. Hasan (eds.), *Biodiversity of Pakistan*. Pakistan Museum of Natural History, Islamabad and Florida Museum of Natural History, Gainesville.
- Woods, C.A., C.W. Kilpatrick, M. Rafique, Muqarrab Shah and Waseem Khan (1997).** Biodiversity and conservation of the Deosai Plateau, Northern Areas, Pakistan, pp. 33-61. In: Mufti, S.A., C.A. Woods and S.A. Hasan (eds.), *Biodiversity of Pakistan*. Pakistan Museum of Natural History, Islamabad and Florida Museum of Natural History, Gainesville.
- Wroughton, R.C. (1905).** The common striped palm squirrel. *Journal of the Bombay Natural History Society* 16: 406-413.
- Wroughton, R.C. (1912).** Some new Indian rodents. *Journal of the Bombay Natural History Society* 21: 338-342.
- Wroughton, R.C. (1915).** The Ceylon hare. *Journal of the Bombay Natural History Society* 24: 41-42.
- Wroughton, R.C. (1916).** Scientific results from the Mammal Survey. No. 14D. The squirrels of *Funambulus palmarum tristriatus* group in the Peninsula. *Journal of the Bombay Natural History Society* 24: 644-649.
- Xavier, F., G.K. Joseph and B. Michael (1998).** Comparative morphometric indices of the large and small flying squirrels. *Zoos' Print* 13(9): 46-47.
- Yahya, H.S.A. (2001).** Occurrence of Indian Pangolin *Manis crassicaudata* in Aligarh, Uttar Pradesh. *Journal of the Bombay Natural History Society* 98(2): 272.
- Yates, T.L. and D.W. Moore (1990).** Speciation and evolution in the family Talpidae (Mammalia: Insectivora), pp.1-22. In: Nevo, E. and O.A. Reig (editors). *Evolution of subterranean mammals at the organismal and molecular levels*. Wiley-Liss, New York.
- Yazdani, G.M., M.S. Pradhan and D.F. Singh (1992).** Fauna of conservation areas: Fauna of Sanjay Gandhi National Park, Bombay (Vertebrates). *Records of the Zoological Survey of India* 92(1-4): 225-251.
- Yu, N., Y-P. Zhang and W-H. Li (2000).** Molecular systematics of pikas (genus *Ochotona*) inferred from mitochondrial DNA sequences. *Molecular Phylogenetics and Evolution* 16(1): 85-95.
- Zahler, P. (1996).** Rediscovery of the Woolly Flying Squirrel (*Eupetaurus cinereus*). *Journal of Mammalogy* 77(1): 54-57.
- Zahler, P. and A. Karim (1998).** New distribution, elevation, habitat, and diurnal refuge for the Kashmir Flying Squirrel *Eoglaucmys fimbriatus*. *Mammalia* 62(4): 588-591.
- Zahler, P. and C.A. Woods (1997).** The status of Woolly Flying Squirrel (*Eupetaurus cinereus*) in Northern Pakistan, pp.495-514. In: Mufti, S.A., C.A. Woods and S.A. Hasan (eds.), *Biodiversity of Pakistan*. Pakistan Museum of Natural History, Islamabad and Florida Museum of Natural History, Gainesville.
- Zahn, W. (1942).** Die Riesen-, Streifen-, und Spitznasen-hornchen der orientalis-chen region. *Zeitschrift Saugetierkunde* 16: 1-182.
- Zhou, Yu-can and Xia, Wu-ping (1981).** An electrophoretic comparison of the serum protein and haemoglobin in three species of mouse-hares - a discussion on the systematical position of *Ochotona curzoniae*. *Acta Theriologica Sinica* 1: 39-44 (in Chinese).
- Zoysa, N. de and R. Raheem (1987).** *Sinharaja - A rainforest in Sri Lanka*. March for Conservation, Colombo, 92pp.

Status of South Asian Non-volant Small Mammals

6. Appendix

Appendix I

F.No. 2-2/2003(PE)
Ministry of Environment & Forests
Project Elephant

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Subject: Amendment in the Schedules of the Wildlife (Protection) Act, 1972 with regard to Spiders, Bats and Rats & Mice.

During the Wildlife Workshop at Chennai on 30th June-1st July 2003, many participants had talked about the lack of legal protection to a large number of endangered yet non-charismatic species under the Wildlife (Protection) Act, 1972 (WPA-1972). In particular, some suggestions regarding the representation of spiders, bats and rodents in the schedules of WPA-1972 were received from the Zoo Outreach Organisation. As desired by the Addl. DGF(WL), I have analysed these proposals and my comments are as follows:

General comments:

- I. In the WPA-1972, as amended in 2002, wild animals now include only the species listed in Schedules I to IV. Therefore, the species included in Schedule V (Vermins) and those excluded from the schedules are no longer 'wild animals'. This has led to some anomalies. For example:
- (a) The Import-Export Policy of Government of India accepts the same definition of wild animals as that given in the WPA-1972. Therefore, although the general tenet of the Policy is to discourage wildlife trade, yet in practice Schedule V animals and non-scheduled animals are available freely for export.
 - (b) The Schedules of the WPA-1972 are not exhaustive and a large number of species, many of them endangered, are not covered by the schedules (**Ref.** A Critical Review of the Schedules of the Wildlife (Protection) Act, 1972 – by S.S. Bist, Indian Forester, October, 1999).
 - (c) A large number of non-scheduled species are economically important and prone to bio-piracy.
 - (d) With the change in the definition of wild animals in the WPA-1972, non-scheduled animals and Schedule V animals no longer enjoy the protection of Section 12 (i.e. hunting for the purpose of education, research and scientific management).
- II. In view of the position explained above, it is essential that all the species which are endangered or have some economic potential, should be brought under any of the Schedules from I to IV.

Specific comments:

(A) Large-bodied (Mygalomorph) Spiders

- I. There are 6(six) families of Mygalomorph spiders (suborder Orthognatha) in India, viz.
- 1. Atypidae (Pure-web Spiders) - 1 species
 - 2. Homalonychidae - 1 species
 - 3. Theraphosidae (Tarantulas) - 51 species

- | | | |
|--|---|------------|
| 4. Barychelidae | - | 10 species |
| 5. Ctenizidae (The trap-door Spiders) | - | 14 species |
| 6. Dipluridae (Funnel-web Tarantula Spiders) | - | 3 species |
- None of the species is covered under any Schedule of the WPA-1972.

II. The Tarantulas are popular among the pet keepers in the developed countries particularly in the USA, Europe, Japan and Hongkong. The Central and the South American Tarantulas are already covered in Appendix-II of CITES. But the Indian Tarantulas have no protection either under the WPA-1972 or under the CITES. Many cases of illegal collection and smuggling of Tarantulas have been reported from Orissa, Kerala, Goa, Kolkata and Chennai. Some collectors pay as high as Rs. 500 per specimen and sell the same in the foreign markets for as much as US \$ 300-400 depending on the size and species. A newspaper cutting from the Hindustan Times dated 6.8.03 may please be seen at Flag 'X'. A question has also been raised in Lok Sabha due for reply on 18.8.03 regarding the protection of these spiders.

III. The Tarantulas will receive necessary legal protection if they are included in Schedule IV. However, the Tarantulas are difficult to differentiate from other Mygalomorph spiders for want of suitable guides. Collectors also deal in more than one species and genus. Therefore, for practical purposes, all the six families of Mygalomorph spiders (suborder Orthognatha) should be included in Schedule IV.

(B) Bats (Chiroptera)

I. There are 114 species of bats reported from India. Of these, two species, viz. *Otomops wroughtonii* (Wroughton's Free Tailed Bat) and *Latidens salimalii* (Salin Ali's Fruit Bat) have been included in Schedule-I w.e.f 30.9.2002. The fruit bats (Megachiroptera) are included in Schedule-V (Vermins). All other insectivorous bats (Microchiroptera) are not listed in the Schedules.

II. Bats are yet to be recognised for many useful and essential things they do for ecosystems and human survival. Fruit bats are major pollinators of plants and also dispersers of seeds which have been noted to have a very high rate of germination. Insect bats consume literally millions of insects which would otherwise destroy valuable crops or spread diseases.

III. A study of fruit bats around Dehradun by the W.I.I (Goyal and Sale, 1992) has established that they play an important role in the regeneration of forests. Goyal and Sale have strongly recommended removal of fruit bats from the Vermin category (Schedule V).

IV. Ironically, the fruit bats of the genus *Pteropus* (5 species reported from India) included in Appendix II of CITES are categorised as Vermins (Schedule V).

V. A CAMP (Conservation Assessment & Management Plan) Workshop of the South Asian Bats was carried out at Madurai in 2002 by IUCN SSC CBSG (South Asia) and Chiroptera Specialist Group. The Workshop has indicated that, of the 114 species of Indian bats, 29 species are threatened

(2 Critically Endangered, 11 Endangered and 16 Vulnerable). Only two of these species presently qualify to be 'wild animal' being covered under Schedule I of the WPA-1972.

VI. It is obvious that none of the bats deserves to be in Schedule V and all of them need legal protection. The following proposal has been made in respect of the 112 species of bats yet to receive protection under the WPA-1972:

- (a) The entry 'Fruit bats' should be deleted from Schedule V.
- (b) *Murina grisea* (Peter's Tube-nosed Bat), identified as Critically Endangered by the CAMP-2002, should be included in Schedule I (Part I)
- (c) The following species identified as Endangered/Vulnerable by the CAMP-2002, should be included in Schedule II (Part II)

1. *Hipposideros durgadasi* (Khajuria's leaf-nosed Bat) - EN
2. *Hipposideros hypophyllus* (Kolar leaf-nosed Bat) - EN
3. *Hipposideros diadema* (Diadem leaf-nosed Bat) - VU
4. *Pteropus faunulus* (Nicobar Flying Fox) -EN & CITES (App-II)
5. *Pteropus vampyrus* (Large Flying Fox) - EN & CITES (App-II)
6. *Pteropus hypomenalus* (Island Flying Fox) - EN & CITES (App-II)
7. *Pteropus melanotus* (Blyth's Flying Fox) - VU & CITES (App-II)
8. *Ia io* (Great Evening Bat) -EN
9. *Nyctalus leisleri* (Leisler's Bat) -EN
10. *Myotis daubentonii* (Water Bat) -EN
11. *Myotis sicarius* (Mandelli's Mouse-eared Bat) -EN
12. *Myotis annectans* (Intermediate Bat) -VU
13. *Myotis blythii* (Lesser Mouse-eared Bat) -VU
14. *Myotis montivagus* (Burmese Whiskered Bat) -VU
15. *Myotis mystacinus* (Whiskered Bat) -VU
16. *Rhinolophus cognatus* (Andaman Horseshoe Bat) -VU
17. *Rhinolophus ferrumequinum* (Greater Horseshoe Bat) -VU
18. *Rhinolophus mitratus* (Mitred Horseshoe Bat) -VU
19. *Rhinolophus hipposideros* (Lesser Horseshoe Bat) -VU
20. *Rhinolophus subbadius* (Chestnut Horseshoe Bat) -VU
21. *Rhinolophus trifolius* (Trefoil Horseshoe Bat) -VU
22. *Rhinolophus yunanensis* (Asian Horseshoe Bat) -VU
23. *Miniopterus pusillus* (Nicobar Long-fingered Bat) -VU
24. *Philetor brachypterus* (Rohu's Bat) -EN
25. *Pipistrellus savii* (Savi's Pipistrelle) -VU
26. *Taphozous theobaldi* (Theobald's Bat) -VU

(d) *Pterocarpus giganteus* is in App.II of CITES, but it has been classified as 'Least Concern' by the CAMP-2002. Therefore, it should be included in Schedule IV.

(e) All the remaining species of bats (84 in number) should also be included in Schedule IV.

(C) Rats and Mice (Muridae)

I. 70 species of rats and mice (family Muridae) have been recorded in India. All of them have been categorised as Vermin (Schedule V). Many experts have questioned this categorisation on the grounds that only a few species of mice and rats are actually known to be pests while many species are either endemic or sparsely distributed.

II. All India Coordinated Research Project on Rodent Control set up by the ICAR has recorded the following species of rats and mice as major pests of agricultural and horticultural crops (Ref. Jain, Tripathi and Rana, 1993):

1. *Bandicota bengalensis* (Lesser Bandicoot Rat)
2. *Bandicota indica* (Larger Bandicoot Rat)
3. *Rattus rattus* (House Rat)
4. *Rattus norvegicus* (Brown or Norway Rat)
5. *Rattus nitidus* (Himalayan Rat)
6. *Rattus meltada* (Syn. *Millardia meltada*) (Soft-furred Field Rat)
7. *Meriones hurrianae* (Desert Gerbil)
8. *Mus booduga* (Indian Field Mouse)
9. *Mus platythrix* (Spiny Field Mouse)
10. *Mus musculus* (House Mouse)
11. *Tatera indica* (Indian Gerbil)
12. *Niviventer niviventer* (Syn. *Rattus niviventer*) (White bellied Rat)
13. *Vandeleuria oleracea* (Palm Mouse)

III. Researchers of Dr. Y.S. Parmar University (1999) and V.R. Parshad (1999) have listed the following additional species as pests:

14. *Golunda ellioti* (Indian Bush Rat)
15. *Gerbillus gleadowi* (Indian Hairy-footed Gerbil)
16. *Rattus rattus brunneusculus* (Sikkim Rat)
17. *Rattus rattus wroughtoni* (Wroughton's Rat)
18. *Nesokia indica* (Short-tailed Mole Rat)

V. The following proposal is being made for providing suitable representation to rats and mice in the schedules of the WPA-1972:

- (a) Existing entries relating to rats and mice should be substituted with the 18 species as listed above.
- (b) The family Muridae (except the species listed in Schedule V) should be added to Schedule IV.

Proposals in a nutshell

In nutshell, it is proposed that:

- (a) All Mygalomorph spiders (Suborder Orthognatha) should be included in Schedule IV.
- (b) One species of bat (viz. *Murina grisea*) should be included in Schedule I (Part I) while 26 species of bats known to be endangered / vulnerable should be included in Schedule II (Part II). All the remaining species of bats should be included in Schedule IV. The existing entry regarding fruit bats should be deleted from Schedule V.
- (c) The existing entries regarding rats and mice in Schedule V should be deleted and replaced with 18 species widely recognised as pests. The family Muridae (except the species listed in Schedule V) should be added to Schedule IV.

Under Section 61(1) of the WPA-1972, the Central Government is competent to amend the Schedules by a notification. A draft notification will be prepared after the approval of the Hon'ble MEF to the aforesaid proposals.

Submitted for favour of consideration.

(S.S. Bist)
IGF & Director (PE)
14.8.2003

**Addl. DGF (WL) &
Director, Wildlife Preservation**

Status of South Asian Non-volant Small Mammals

7. Index

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