

CBSG News

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Volume 2
Number 3
September, 1991



Newsletter of the
Captive Breeding
Specialist Group,
Species Survival Commission,
World Conservation Union

Increasing Risks Pose Increasing Challenges

The selection of species for captive conservation programs has been suggested to be limited by space, personnel, and financial resources. Estimates of the number of non-fish vertebrate species that might require a captive population to reduce the risk of extinction or reduce the rate of loss of heterozygosity have been based upon educated guesses rather than a deliberate survey using consistent criteria. The Action Plans being prepared by the Specialist Groups of the Species Survival Commission, such as those for the Primates and the Canids, provide overviews of the status of their taxonomic group in the wild with an evaluation of a status based upon the classical IUCN categories of threat. The recent formulation of categories of threat based upon population biology criteria by Mace and Lande (see last issue of Newsletter) and an improving knowledge of the population biology requirements for establishing and managing a captive population provide the conditions for a more systematic assessment.

The CBSG, in close collaboration with individual Specialist Groups and other organizations, has undertaken a process of testing the application of the Mace-Lande criteria for assignment of category of threat to groups of taxa (for example species and subspecies of Primates and of Anatidae). The results of this process indicate that about 15% of taxa may be CRITICAL and another 15% ENDANGERED. These results suggest that as many as 3,000-5,000 individual non-fish vertebrate taxa are at significant risk (50-20%) of extinction over the next 2-5 generations (10-50 years). The results of this assessment provide a view of the scope of the developing crisis and a partial basis for choosing species for PVAs and priority captive programs. A draft of the results of this assessment process for the Primates and Anatidae will be available for review and comment at the CBSG meeting in Singapore. Other groups currently under review include the Felidae, Asian Hornbills, and the Cervidae.

Extinction for many and perhaps most of these species may be avoided by prompt action but it is likely that populations will remain small and fragmented for long periods of time in the face of the continuing expansion of human populations and the intense use of resources in heavily industrialized regions. The use of Genome Banking, during the next 200 years, to augment the sampling of the species genetic heterozygosity preserved is likely to be needed. Reproductive technology has made only a limited contribution to practical conservation (for example, artificial insemination in whooping cranes and peregrine falcons) as yet, but it is clear that recent advances will make application of these technologies on a broad scale to vertebrates, invertebrates, and plants feasible in the near future. Serious consideration thus needs to be given necessary population biology guidelines and organizational needs to effectively implement this technology. Consideration of these issues, with particular emphasis on guidelines for establishment of genome banks and guidelines for the use of the materials in species management programs over a 100 and 200 year time scale, has been underway during the past year and reports on various aspects of such programs will be available for review and comment in Singapore.

The potential for transport of diseases between captive and wild populations (in both directions) is recognized as a real risk that must be included in all conservation management planning prior to the actual transfer of animals. We lack databases of the needed information on the incidence, distribution, and risks of disease in captive and wild populations to allow systematic evaluation of these risks or ongoing events. A CBSG working group has prepared an overview of these problems and some of the activities needed in the captive community to provide this information on a continuing basis. This report will be available for review and comment in Singapore.

Ulysses S. Seal, CBSG Chairman

Captive Breeding Specialist Group Conservation Advisory Council

These Institutions and Organizations have contributed to core support of the CBSG Office. Others who would like to contribute to CBSG should please contact the CBSG Office for further details.

Conservators

- American Association of Zoological Parks and Aquariums
- Chicago Zoological Society
- Cleveland Zoo
- Columbus Zoological Gardens
- Dallas Zoological Society
- Denver Zoological Foundation
- Fossil Rim Wildlife Center
- Friends of Zoo Atlanta
- Greater Los Angeles Zoo Association
- International Union of Directors of Zoological Gardens
- Jacksonville Zoological Park
- Lube Foundation
- Minnesota Zoological Garden
- New York Zoological Society
- Omaha's Henry Doorly Zoo
- Toronto Zoo
- White Oak Plantation
- Zoological Society of Cincinnati
- Zoological Society of San Diego
- Cotswold Wildlife Park
- Dutch Federation of Zoological Gardens
- Federation of Great Britain and Ireland Zoos
- Givskud Zoo
- Howlett & Port Lympne Foundation
- Japanese Association of Zoological Parks and Aquariums
- Jersey Wildlife Preservation Trust
- The Living Desert
- Marwell Zoological Park
- National Zoological Park, Smithsonian Institution
- NOAHS Center
- North of England Zoo
- Odense Zoo
- Oklahoma City Zoo
- Orana Park Wildlife Trust
- Paignton Zoo
- Paradies Park
- Pencynor Wildlife Park
- Philadelphia Zoological Society
- Riverbanks Zoological Park
- Royal Zoological Society of South Australia
- Royal Zoological Society of Antwerp
- Royal Zoological Society of Scotland
- San Francisco Zoological Gardens
- Thrigby Hall Wildlife Gardens
- Twycross Zoo
- Union of German Zoo Directors
- Urban Council Hong Kong
- Washington Park Zoo
- Wildlife Preservation Trust International
- Wilhema Zoo
- Woodland Park Zoological Society
- World Parrot Trust
- Yong-in-Farmland
- Zoological Society of London
- Zoological Society of Wales

Guardians

- Detroit Zoological Park
- King's Island Wild Animal Habitat
- North Carolina Zoological Park
- Saint Louis Zoo
- Toledo Zoological Society
- Zoological Society of New South Wales

Protectors

- Aalborg Zoo
- Asmode, Jean Francois
- Audubon Zoo
- Banham Zoo
- Caldwell Zoo
- Calgary Zoological Society
- Cologne Zoological Garden
- Copenhagen Zoo

CBSG News

The CBSG news is published by the Captive Breeding Specialist Group, Species Survival Commission, World Conservation Union. CBSG News is intended to inform CBSG members and other individuals and organizations concerned with the conservation of plants and animals of the activities of the CBSG in particular and the conservation community in general. We are interested in exchanging newsletters and receiving notices of your meetings. Contributions of \$25 (U.S.) to help defray the cost of publication would be most appreciated. Please send contributions or news items to:

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CBSG Mission Statement

The mission of the Captive Breeding Specialist Group is the conservation or establishment of viable populations of threatened species.

The goals of the CBSG are:

1. Organize a global network of people and resources
2. Collect analyze and distribute information
3. Develop global captive breeding programs
4. Integrate management programs for captive and wild populations



Agenda for the 1991 Annual CBSG Meeting

Below is the revised agenda for the CBSG meeting to be held in Singapore on 27-29 September 1991:

1. Introductions and Meeting Arrangements, Working Groups (Seal).
2. Annual CBSG Report (Seal, Foose)
 - CBSG Finances and Support (Jackson, Roberts)
 - Steering Committee (Seal et al.)*
 - New Foundation - Global Captive Conservation Network (G.C.C.N.) (Seal)
3. ISIS Report (Fiesness)
4. International Studbooks (Olney)
5. Global Conservation Coordinators Committee (De Boer, Foose et al.)*
6. Regional Conservation Coordinators Report
 - ASMP (Porter)
 - EEP (de Boer)
 - SSP (Hutchins)
 - SSCJ (Komori)
 - SE Asia (Ashari)
 - India (Walker)
 - Brazil (Padua)
 - Meso America (Calvo)
 - Africa (Labuschagne)
7. Zoo Conservation Strategy Document and Group (de Boer, Karsten, Wheeler, Seal)*
8. Global Captive Conservation Network/Global Zoo Secretariat (Rabb, Wheeler, Seal)*
9. Global Captive Breeding Action Plans (Jointly with SSC taxonomic Specialist Groups)
 - Overview (Foose)*
 - Primates (Stevenson, Foose)*
 - Felids (Wildt, Jackson)*
 - Waterfowl (Joseph, Hewston)*
 - Hornbills (Worth, Sheppard)*
 - Cervids (Wemmer)*
 - Rhinos (Reese, Foose)*
 - Marsupials (Phipps, Hutchins)*
 - Further Schedule (Foose)*
 - Penguins
 - Parrots
 - Canids
 - Antelopes
10. Population Viability Analysis Workshops (Seal)
 - Recent: (Whooping Crane, Pink Pigeon, Asian Horn bills, Mexican Wolf, Leontopithecus)
 - Scheduled: (Tana River, Mauritius, Madagascar, Karner Blue Butterfly, Aruba Island Rattlesnake, Caribbean Parrots, Kaka, Kea, Kirtland's Warbler, White-winged Wood Duck, Waldrapp Ibis, Orangan, Spectacled Bear, Black Rhino, Indonesian Rhinos)



1991 CBSG Meeting
Singapore

11. Genome Preservation & Banking Working Group Report (Wildt, Johnston)*
12. Faunal Interest Groups.
 - Overview (Anderson, Wemmer)
 - Madagascar (Anderson, Hartley)*
 - Vietnam/Philippines (Simmons, Cox, Dixon)*
 - Indonesia/Malaysia (Wemmer, Ashari)*
 - Brazil (Schischakin, Padua)*
 - Zaire (Daman, Lukas)*
 - Ethiopia (Dixon)*
13. Zoos and Protected Areas (Roberts, Tilson)*
14. Global Heritage Species Programme (Rabb, Sullivan, Stuart, Karsten)*
15. Hybridization, Subspecies, and Species Working Group (Lacy)*
16. Diseases and Reintroduction of Endangered Species Group (Miller, Kirkwood)*
17. Transponders - Choice and Placement (van den Sande, Blumer, Elbin).
18. Newsletter - (Seal, Mikolai, Foose).
19. Education and Training - (Hage, Mallinson, Wemmer, Read).
20. Taxon Working Groups.
 - Bats (Fascione)*
 - Asian Lions
 - Przewalski's Horse (Ryder, Knowles)
 - Asian Rhinos*
 - Black Rhinos (Jackson, Kelly)*
 - Antelopes (Sausman)*
 - Duikers (Wilson)*
 - Wild Cattle (Read)
21. Avian Working Group (Wylie)*
22. Invertebrate Working Group (Kelly-Jones)*
23. Aquatic Working Group (Kaufman)
24. Reptile and Amphibian Working Group (Banks)*
25. Giant Panda Loan Moratorium (Karsten, Stuart)*

* These groups will be meeting and providing reports during the course of the plenary meetings.

Captive Action Plans and Fauna Interest Groups

by Tom Foose, CBSG, and Michael Hutchins, AAZPA

A preliminary chart of relationships among action plans, both captive and wild as well as regional and global, was published in Volume 2, Number 2 of CBSG News. Since then, discussion has continued about development of strategic captive action plans and has refined some of the views presented in this previous article. It seems useful to present some of the points of this discussion both to clarify relationships and to guide further dialogue.

Strategic captive action plans exist at three levels: Global Captive Action Plan, Regional Collection Plans, and ultimately, Institutional Collection Masterplans. All three need to be developed by a dynamic and interactive process.

At the international level, the IUCN/SSC Captive Breeding Specialist Group (CBSG) is developing Global Captive Action Plans. These CBSG Captive Action Plans review the wild and captive status of all taxa for the multi-taxa group of concern, i.e. Order, Family, etc. The Global Action Plans provide general recommendations regarding which taxa need captive propagation and other intensive management efforts. Global priorities are based upon input from various agencies and organizations, such as the other relevant IUCN SSC Specialist Groups and the various regional captive breeding programs (e.g., EEP, SSP, ASMP, etc.). Very importantly, the Regional Taxon Advisory Groups (TAGs) are intimately and interactively involved in the development of the Global Captive Action Plans. As a matter of policy, Regional Taxon Advisory Group chairs serve on the CBSG Action Plan Working Groups. Further, Global Captive Action Plan Working Groups also facilitate interaction and coordination among Regional TAGs as they develop their Regional Collection Plans in an attempt to optimize the use of captive space and resources for conservation on an international basis.

At the Regional level, Taxon Advisory Groups: (1) consider these global priorities *within a regional context* and (2) develop and implement a Regional Collection Plan. The CBSG

Global Plans will provide general recommendations about taxa priorities, target populations, and space/resource allocation. Regional Taxon Advisory Groups will be responsible for producing a more detailed Regional Collection Plan and for implementing the recommendations. Another responsibility of the Regional TAGs and Collection Plans should be to encourage institutions to develop their own Collection Masterplans in the context of both the Regional and ultimately the Global Action Plans.

Both the Global and the Regional Plans will be reassessed and revised through an interactive and iterative process that will reflect new information and shifting priorities. The Plans will be considered a "living" document that will reflect current priorities. Plans will need to be updated periodically to respond to changing circumstances. Figure 1 illustrates these views of roles and relationships among various strategic action plans.

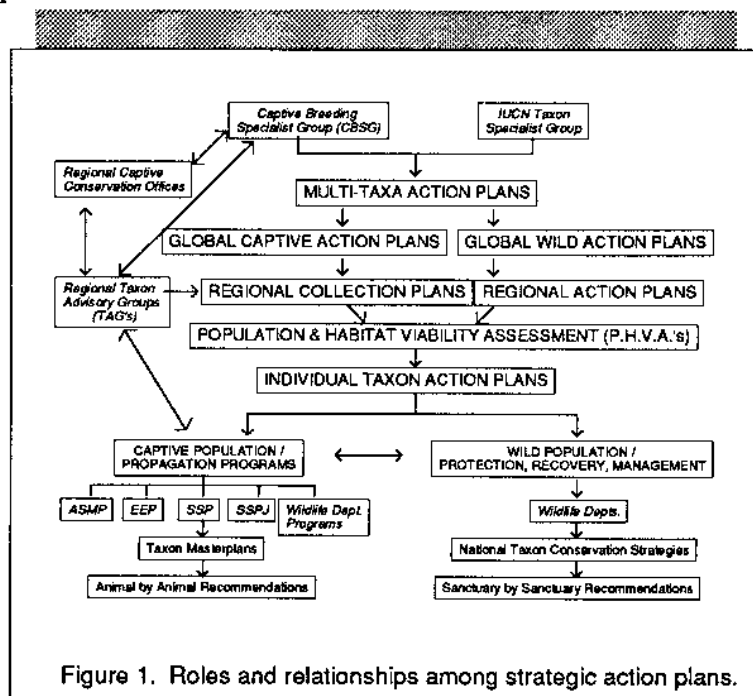


Figure 1. Roles and relationships among strategic action plans.

Fauna Interest Groups

Fauna Interest Groups (FIGs) are also developing at both global and regional levels to coordinate and promote conservation activities by zoos within various faunal regions of interest, especially areas of high biodiversity, e.g., Madagascar, Indonesia, Malaysia, Brazil, and Zaire. It is proposed that there is merit in the worldwide captive community

operating as a collective unit in its interactions with countries of interest to the FIGs. Thus, FIGs should be primarily global in nature. However, there is also merit in developing FIGs within Regions (e.g., Australia/New Zealand, Europe, North America) of the world zoo community as reporting and informational networks within each Region. Chairs of Regional FIG's serve on Global FIG's.

A simple diagram depicting these relationships and roles is presented in Figure 2. Please note that the relationship between regional and international FIGs is envisioned as very interactive and collegial, with Regional Conservation Offices and CBSG providing advisory, facilitation, and coordination services to participating institutions.

Action Plans...

Interaction Between Captive and Field Conservationists

Part of the official SSC mandate to CBSG is that it be the primary link between the global captive community and the other SSC Specialist Groups. Moreover, CBSG Global Captive Action Plans are being developed as joint endeavors between CBSG and the relevant SSC taxonomic Specialist Groups. However, it is also very appropriate and constructive for field conservationists to be appointed as advisers to Regional Taxon Advisory Groups for issues of husbandry and problems that emerge as largely regional in nature. It will be useful to expand representation from the captive community on SSC taxonomic Specialist Groups. While such representation is good on some Specialist Groups, it is very limited on others. The CBSG will encourage other Specialist Groups to add more captive community representatives.

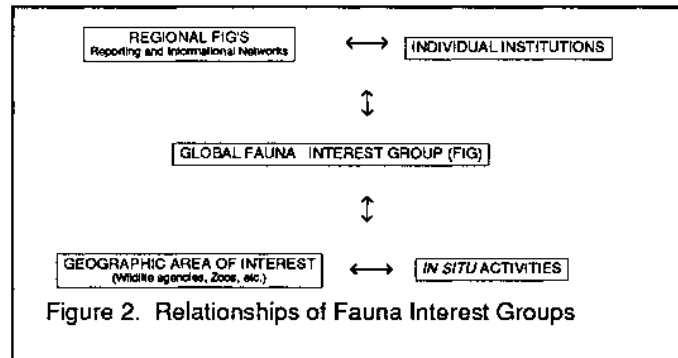


Figure 2. Relationships of Fauna Interest Groups

Agenda for Regional Conservation Coordinators Committee Meeting

Following is the tentative agenda for the CBSG Regional Conservation Coordinators committee meeting to be held in Singapore on 26 September 1991.

1. Studbook Issues
 - Standardization of Regional Studbooks
 - Relationship of Regional and Global Studbooks
 - Coordination of Numbers Assigned
 - Computerization (Convertability to SPARKS or ZSM).
 - Archives and ISIS
2. New Software Development (e.g., SPARKS II)
3. Training of studbook keepers and species coordinators

- Regional responsibilities and programs
 - Standardization
 - Studbook Keeper/Species Coordinator Manual
4. Global Captive Action Plans
 - Systematic Formation of Global Action Plan Groups; linkage to SSC Taxonomic Specialist Groups
 - Schedule of Action Plan Workshops
 - Interaction of Global Action Plan Groups with Regional Taxon Advisory Groups (TAG's)
 5. Regional Taxon Advisory Groups (TAG's)
 - Initiation in and Coordination among Regions
 - Functions
 6. Global Programs and Masterplans for Individual Taxa
 - Guidelines (Biological and Organizational) for Interaction of Regional Programs.
 - Plans for/Selection of More Trial and Model Programs
 7. Fauna Interest Groups (FIG's)
 - Relationship of Global and Regional
 8. Core Activities of CBSG Office

Recommendations for Standardized Transponder Implantation Sites

Following is a report on recommended implantation sites for transponders prepared by Susan B. Elbin, Curatorial Intern, Animal Management Services, New York Zoological Park, Bronx, New York 10460:

Our goal in establishing standard implant sites for a range of species is to simplify transponder implantation and scanning. We have considered the responses of the TAGs, FIGs, SSP coordinators, and studbook keepers. In our recommendations, we have considered all of the responses received and have adopted many of them. We welcome any additional comments or suggestions from the international community. A global list of standardized implantation sites (Table 1) and a list of species that do not fit the general guidelines (Table 2) are also presented.

Fish

We agree with the single response for implant site in fish: base of dorsal fin for fish longer than 29 cm; coelomic implantation for fish shorter than 30 cm.

Amphibians

Two of the three responses for amphibians agreed on using the lymphatic cavity site. It has been observed that coelomic implantation in a gravid female can lead to expulsion of the eggs through the wound. Therefore, we recommend lymphatic implantation.

Reptiles

Each Taxon advisory group reported and justified implantation sites according to order as follows: chelonians - hind limb socket; crocodylians - anterior to nuchal cluster; lizards (large: > 12.5 cm snout to vent length) - lateral, anterior to inguinal region (left), lizards (small: <12.5 cm snout to vent length) - coelomic cavity (because of delicate skin); snakes - nape of neck (left). We recommend using the animal's *left* side for transponder implantation for the sake of agreement with the other Taxa.

Birds

Most people selected either the pectoral muscle (subcutaneous) or the base of the neck for implantation in birds (81%, n=26 responses). There were not many responses for small birds. One group recommended *no* transponders be used (pink pigeon). Additional discussion should be encouraged for this species. A pattern emerged that reflected the size of the bird well as the handling method. We recommend implanting large and/or heavy birds that are typically restrained by more than one person to be implanted dorsally at the base of the neck for ease of scanning while handling. Smaller or more tractable birds (i.e. vultures) should be implanted on the *left* breast muscle. We recommend implantation on the left side for consistency across classes.

Mammals

Most people agree that either the area at the base of the ear or the area between the shoulder blades is the best site for transponders in mammals (70%, n=69 responses). These two regions are well defined, protected from impact, and will not cause irritation that would encourage the animal to pick or rub the spot.

Adult size of the animal should be used to determine proper implantation site. We suggest using the face of the scanner to estimate a mammal's (relative) size. If the intrascapular area, e.g. from the backbone to the shoulder blade, is less than or equal to the diameter of the scanner (17 cm), the animal is considered to be small to medium-small. If the intrascapular area is greater than or equal to the diameter of the scanner (>17 cm), then the animal is medium-large to large.

Transponders in large to medium-large mammals should be placed behind the left ear at the base. Transponders in small to medium-small sized mammals should be placed between the shoulder blades, since the region behind the ear will often not accommodate a transponder chip. If the animal cannot be implanted in either of these two locations, an alternate site (always on the *left* side) will be used and included in a list of exceptions.

We recommend that the same side (e.g. the animal's left side) *always* be used for transponder implants, regardless of site chosen. This reduces any possible confusion or interference that may arise with implantation of reproductive implants and reduces the scanning area to one-half of the animal. We suggest, then, that *reproductive* implants with microchips should always be implanted on the animal's *right* side.

Table 1. Global implantation site recommendations for different classes of vertebrates. All transponders should be inserted on the animal's left side when applicable.

Fish:

Large (>30 cm): left base of dorsal fin
Small (<30 cm): coelomic cavity

Amphibians:

Lymphatic, cover wound with skin bond

Reptiles: (by order and body size; size measurement is snout to vent length of adult lizard)

Chelonians: (left) hind limb socket

Crocodylians: anterior to nuchal cluster

Lizards (large, >12.5 cm snout to vent): (left) inguinal region

Lizards (small, < 12.5 cm snout to vent): intercoelomic cavity

Snakes: nape of neck (left)

Birds: (size measurement is mass of adult bird)

Large (>1.5 kg and/or long-legged) - dorsally at juncture of neck and body

Medium to small (<1.5 kg) - on pectoral muscle.

Note: all Psittaciformes = left pectoral muscle; all New World and Old World vultures = base of neck; all other Falconiformes = pectoral muscle

Mammals: (size measurement is distance between back bone and shoulder blade of adult mammal)

Large, medium-large (> 17 cm) - behind left ear, at base

Small, medium-small (<17 cm) - between shoulder blade, left of center

Table 2. Exceptions to global implantation site recommendations.

<u>Species</u>	<u>Implant Site</u>	<u>Comments</u>
Elephant	Main caudal fold parallel to tail on left side	
Hyrax	Intralumber, left of center	Thick skin on neck makes implantation difficult
Loris	Intralumbar, left of center	Dermal shield makes scapular implantation difficult

IUCN Recommends Moratorium on Panda Loans



Martin W. Holdgate, IUCN Director General, has called for a worldwide moratorium on short-term, exhibit-only loans of giant pandas. Data presented at an international panda workshop hosted by the U.S. National Zoo in June indicated that the giant panda's situation in the wild is "perilous" and the species is not fairing much better in captivity.

Because of this, Director Holdgate has concluded that "there is now no option but to recommend strongly that a moratorium on short-term exhibit-only loans be enforced worldwide. The IUCN has concluded that these non-breeding loans are providing a distraction to the real business of establishing a conservation strategy that will save the species from extinction." Director Holdgate urged that such loans be discontinued "until a satisfactory conservation strategy for both the captive and wild populations of the species is developed."

The IUCN will continue to pursue the objective of developing the necessary conservation strategy for the species and intends to start a program of collaboration with the government of the People's Republic of China as well as other interested parties.

Bali Mynah Status

The Bali Mynah (*Leucopsar rothschildi*) Species Survival Plan (SSP) currently has 70 participants. In addition, about 30 private individuals participate in this species recovery with some making greater contributions than some institutions.

A masterplan was developed in 1988. It was determined that a minimum viable population of 600 individuals would be necessary to maintain 90% of the original genetic diversity for

200 years. A major objective of the masterplan was to obtain new founders. Four siblings were subsequently obtained from the Hong Kong Zoo in 1990. All four have been paired with SSP stock with at least one pair producing offspring. In January, 1991, four more birds were acquired from Jersey Wildlife Preservation Trust and these have also been paired with SSP stock. The captive population of the Bali mynah has increased by 5% since last year (Table 1).

Iron storage disease (hemochromatosis) continues to be the primary cause of mortality in adult Bali mynahs despite the use of "low iron" diets. A veterinary advisor is developing standardized necropsy and postmortem laboratory procedures as well as preparing a nutritional and disease survey. Feather plucking is another consistent health problem affecting approximately 20% of the population.

In addition to captive efforts, there is also a Bali mynah reintroduction project jointly managed by the American Association of Zoological Parks and Aquaria and the International Council for Bird Preservation. In the past year 12 captive-raised birds were released and integrated into the small remaining flock in Bali Barat National Park. At least one clutch was fledged from a captive/wild pair. It is estimated that there are from 36-39 birds in the park which represents a 100% increase over the fall 1990 census. Indonesian officials have begun registering wild-caught Bali mynahs held illegally by private citizens on Java and Bali. Under the Amnesty Campaign, these persons will not be prosecuted and the genetically-valuable birds will be exchanged for surplus North American birds.

Goals for the Bali Mynah SSP include the importation of additional founder stock from previously untapped sources; complete revision of a husbandry manual to comply with the SSP format; convert the studbook from Houston/Omaha format to SPARKS; complete development of the necropsy protocol; distribute the disease and nutrition survey to all participants; and begin preparations for a new masterplan session to be held sometime in 1992.

This report was submitted by Robert E. Seibels, AAZPA SSP Bali Mynah Species Coordinator and Studbook Keeper, Riverbanks Zoological Park.

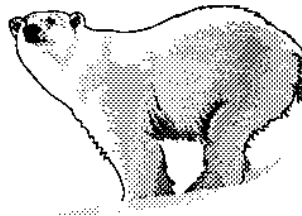
	<u>1 Year Ago</u>	<u>Current Year</u>
Total Number of SSP Participants	68	70
Total Captive Population	163,156.49	171,165.50
#SSP Animals Managed	368	386
Total Births in SSP Program	58	50
# Surviving to 1 year	23	36
Total Death of SSP Animals	64	47
Total Imports	0	4
Total Exports	0	0
Total Founders with Descendants	37	37

Table 1. Status of Bali Mynah SSP as of January 1991.

Joint USSR-USA Polar Bear Study

Participants from several institutions in the USSR and the USA combined their experience and technology to study Chukot-Alaskan population of polar bears. The joint venture was headed by Dr. Belikov from the Soviet Union and Dr. Garner from the state of Alaska, USA.

The purpose of the study was to capture and radio-collar female bears in order to obtain morphometric measurements, blood and hair samples, to locate dens and to examine the structure of such dens, to determine the range of the bears, and to establish contact with Chukot natives.



A total of 22 female bears were tranquilized from helicopters and equipped with radio collars which transmitted their signals to satellites which, in turn, relayed the data to a tracking center in France. Besides location, the collars also transmitted ambient temperature data which enabled scientists to determine whether the bear was on land, in the water, or in a den.

The work on the Wrangel Island Reserve confirmed that polar bears moved between the Soviet Union and Alaska. This finding underscores the need for joint management by both countries.

This report was submitted by A. V. Malyov and M. G. Mirolyubov, USSR.

Emergency Funds for Drills Sought

The Drill Rehabilitation and Breeding Center is in need of interim funding to maintain their existing captive group. The Center currently has 3.2 drills, from 4 months to 6 years old. In addition, there are 1.3 drills being kept illegally in the immediate Calabar vicinity, and others further afield. The Cross River State Department of Parks & Wildlife is ready and willing to seize these animals and turn them over to the Center. These animals combined with the existing group would be close to a founder group.

However, the Center is not financially able to care for any more animals, let alone those already existing. The present enclosure (about 35 sq. m.) is inadequate and on the verge of collapse. A new, larger structure is necessary to accommodate the growing group. There is concern not only for the well-being of the drills presently housed at the Center, but for the fate of

those drills that are, in effect, turned away.

A decahedral enclosure of about 250 sq. m. has been designed to serve as an interim facility until funding is secured and a site selected for construction of a permanent facility. Such interim facilities should be adequate to care for the existing group and any newcomers arriving in the next 12-18 months. The anticipated cost of this enclosure is \$1400. Leasing of the property is about \$900 per year. We expect it will be possible to solicit some donations of materials for construction of this interim facility.

Current maintenance costs are running about \$90 per month, including food and keeper. A budget of interim funding needed immediately to cover the next 12 months is as follows:

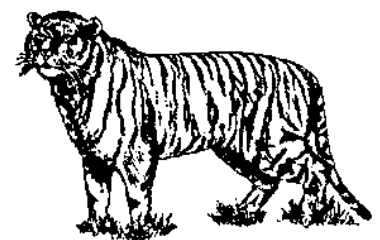
Interim Enclosure and Lease	\$2,300.00
Feeding	500.00
Staff	400.00
Manager	1,200.00
Miscellaneous	400.00
Total	\$4,900.00

Individuals or institutions interested in helping finance this Drill rehabilitation and Breeding Center should contact: Liza Gadsby or Peter Jenkins, c/o Nick Ashton-Jones Housing Estate, P.O. Box 107, Calabar, Nigeria.

Tiger Breeding in China

China has two species of tigers; the Siberian tiger (*Panthera tigris altaica*) and the South China tiger (*P. t. amoyensis*). There are no more than 40 Siberian tigers in the wild in the Jilin and Heilongjiang Provinces and perhaps 100 more in Chinese zoos. There are fewer than 20 South China tigers in the wild with 30 more in zoos.

Huang Gongqing, senior veterinarian and director of the Suzhou Zoo in Jiangsu Province, has studied captive breeding of tigers for the past five years. Using a method of carefully screening potential mates and allowing adequate time and space for them to become acquainted, he has achieved substantial success. Tigers have a 105-day gestation period and usually breed once a year. Huang Gongqing, however, has succeeded in getting a female to breed twice in one year. This female has had one litter already this year and if she has a second litter it will be the first time a Chinese zoo has recorded two tiger births in a year from one female.





Invertebrate Taxon Advisory Group

The AAZPA Wildlife Conservation Management Committee (WCMC) officially recognized the Invertebrate Taxon Advisory Group (ITAG) in December 1990. In conjunction with formal recognition, the previously publicized name of Invertebrate Management Advisory Group (IMAG) was changed to ITAG. This was done for consistency and to make the group readily identifiable as a TAG, one of the legal entities reporting to the WCMC with defined functions and responsibilities. The ITAG will work closely with the CBSG Invertebrate Group.

An important purpose for ITAG and the CBSG IG is the determination of species suitable for captive propagation. ITAG must compile a list of species in need of help. The husbandry for these species in captivity must also be known. Examples of suggested species under consideration would be the carrion beetle (*Nicrophorus americanus*), the giant swallowtail of Jamaica (*Papilio homerus*), and several species of endangered North American freshwater mussels.

Anyone with suggestions can contact the ITAG chair CBSG IG Co-chair, Randy Morgan at Cincinnati Zoo, 3400 Vine Street, Cincinnati, Ohio 45220; telephone (513) 281-4701.

In February, Randy Morgan met with federal and state agriculture officials at the Central Plant Board meetings. His main goal was to make this group aware of the existence of ITAG. Reaction from this group appeared very positive. Members have offered their support in reviewing protocols that would facilitate procedures for importing invertebrates. Working with these individuals and obtaining their support are important steps to achieving the goals of ITAG.

The ITAG had their mid-year meetings at the Great Lakes Regional AAZPA conference in Battle Creek Michigan on 5-7 May. One of the proposals discussed was the need for an Arachnid Specialist Group (ASG). Dr. Robert Wolfe of Trinity Christian College in Palos Heights, Illinois and Tom Mason of Metro Toronto Zoo have agreed to help in the establishment of this group.

The threatened Red Kneed Tarantula (*Euathlus smithii*) was proposed as the first species to be established in the captive breeding program. This will be assessed immediately on the establishment of the ASG.

The Partula Snail SSP Master Planning session took place in St. Louis. The AAZPA Partula SSP representatives were pleased to welcome Mr. David Clarke of London Zoo, who was there representing the International Partula Propagation Core Group. Representatives of ITAG were also present at the 1991 Xerces/Conservation and Biology joint meetings at Madison, Wisconsin.

The next planned session for ITAG will occur at the AAZPA National Conference in San Diego from 14-19 September 1991. Sessions on the captive management of invertebrates

are planned. Anyone wishing to participate should contact Randy Morgan.

Two more special events have occurred. Mr. Steve Prchal of Sonoran Arthropod Studies has received the Roger Tory Peterson Educators Award for the work that he has accomplished over the past years. The Cincinnati Zoo has become the first zoo to obtain a colony of *Nicrophorus americanus*, the American carrion beetle. The colony has been supplied by the U.S. Fish and Wildlife Service. Once found across Eastern North America from Southern Ontario to Arkansas, these insects are presently

Abruzzo Chamois Reintroduced

The World Wildlife Fund (WWF)-Italy recently announced that about a dozen Abruzzo chamois (*Rupicapra pyrenaica ornata*) have been reintroduced into the Majella Massif in the Abruzzo National Park. This project began last year with the captive breeding of two males and five females in WWF-Italy's Oasis at Lama dei Peligni. The chamois became extinct on the massif several decades ago because of hunting and intensive sheep rearing. The residual population of Abruzzo chamois is from 450-500 residing mostly in the Val di Rose of the Camosciara Massif.

The reintroduction was a joint effort of the Appennine Ecological Study Center of the Abruzzo National Park, WWF-Italy, and the Italian army which supplied the helicopter transport of the animals. An additional reintroduction of chamois is scheduled for this October.

Regional Conservation Coordinators

Below is a list of regional Conservation Coordinators and advisors to the Conservation Coordinators Committee:

- Bert DeBoer, EEP Executive Office
- Frank Princee, EEP Executive Office
- Mike Hutchins, AAZPA Director of Conservation and Science
- Barbara Porter, Australasian Conservation Coordinator
- Claudia Padua, Brazilian Zoo Association Conservation Coordinator
- Lorena Calvo, Meso-American Zoo Association
- Tom Foose, CBSG Executive Officer
- Atushi Komori, Japanese Zoo Association
- Gen. Ashari, South East Asian Zoo Association
- Willy Labuschagne, Pan-African Zoo Association
- Saroj Patnaik, Indian Zoo Association
- Zheng Shuling, Chinese Zoo Association
- Bob Lacy, Brookfield Zoo, Advisor
- Nate Flesness, ISIS, Advisor
- Bruce Read, Chairman AAZPA SSP, Advisor

IUCN Species Survival Commission

Specialist Group on Sustainable Use of Wildlife

The mission of this Specialist Group is to promote sustainable use of wild species as a tool for conserving species and the ecosystems of which they are part.

"Wild species" are defined as any native organism that is wild. However, the group will focus on those wild species for which the Species Survival Commission (SSC) has a specialist group. "Use" means any activity involving a wild species that benefits people. "Sustainable use" means use of an organism or ecosystem at a rate within its capacity for renewal.

Goals

The goals of the Specialist Group on Sustainable Use of Wildlife are:

1. To test the assumption that sustainable use of wild species can be an effective conservation tool.
2. To develop criteria for determining that a particular use of a wild population is sustainable.
3. To assist in the development of ethical principles for sustainable use of wild species.
4. To develop protocols or models for sustainable use projects.
5. To evaluate sustainable use projects and to determine their sustainability.
6. To produce case studies of sustainable use projects, to help in the development of criteria and models, and to promote the wider adoption of sustainable use as a conservation tool.
7. To review threats to species and investigate the extent to which sustainable use projects might remove or reduce such threats.
8. To assist in the development of sustainable use projects as a conservation tool with particular emphasis on projects that benefit directly the local people concerned.

Objectives

Specific objectives include:

1. Developing criteria for sustainable use by: a) collaborating with IUCN's Sustainable Use of Wildlife Initiative to form a criteria working group; b) reviewing and developing the criteria identified by the Special Workshop on Biological Considerations of Sustainable Use (Perth, 1 December 1990); c) publishing the criteria; d) and monitoring evaluations and case studies to check the validity of the criteria.
2. Assisting in the development of ethical principles for sustainable use of wildlife. This objective will be accomplished by collaborating with the IUCN Ethics Working Group to analyze ethically contentious issues concerning sustainable use of wildlife and to develop ethical principles based on such analyses.

3. Publishing protocols or models for sustainable use projects. This will be done by conducting a workshop to review the first ten evaluations and case studies and to develop one or more protocols or models for a sustainable use project.

4. Testing the assumption that sustainable use projects can be an effective conservation tool.

5. Preparing evaluation and case study procedures.

6. Determining the extent to which sustainable use is already an effective conservation tool by querying the specialist groups whether there are any sustainable use projects involving their species and then assembling information on each project.

7. Exploring the potential for sustainable use projects with specialist groups that do not have such projects.

8. Assisting in the development of pilot sustainable use projects, with particular emphasis on projects that benefit directly local people concerned. These projects would be of two kinds: conversion from unsustainable to sustainable use; sustainable use as an incentive to remove or reduce threats such as habitat destruction.

Organization

The organization of the Specialist Group on Sustainable Use of Wildlife will be comprised of a steering committee consisting of: 1) two joint-chairs; 2) vice chairs for the Afrotropics, Western Palearctic, Eastern Palearctic, Indomalaya, Australia and Oceania, Nearctic, Neotropics, Indigenous Peoples, Ethnobiology, SSC; 3) representative of the Specialist Group on Trade; and 4) one observer each from CITES, Ramsar, TRAF-FIC, WCMC, IUCN's Sustainable Use of Wildlife Initiative.

Membership

Specialist Group membership will consist of: 1) a regionally balanced selection of population biologists, geneticists, resource economists, representatives of indigenous peoples, ethnobotanists, ethnozoologists, and specialists in trade, tourism and other aspects of wildlife use.; 2) representatives of the SSC specialist groups; 3) and representatives of each of the other IUCN Commissions.

Joint chairs for the Specialist Group on Sustainable Use of Wildlife are Christine and Robert Prescott-Allen, 627 Aquarius Road, RR2, Victoria, BC, Canada V9B 5B4; telephone: 604-474-1904; telefax: 604-474-6976.



U.S. Bans Wildlife Trade with Thailand



Secretary of the Interior Manuel Lujan announced that the United States is banning trade with Thailand in wildlife protected under an international treaty that regulates trade in endangered species.

"This trade ban will protect wildlife by denying a market for illegally taken animals," Lujan said. "Through this action, the United States is living up to its responsibility as part of the international environmental community."

Lujan's action, which takes effect 30 July 1991, bans imports and exports of all wildlife protected under the 111-nation Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The action affects an estimated \$18 million in annual trade in CITES-regulated wildlife between Thailand and the United States. The vast majority of the trade is wildlife exported from Thailand to the United States.

The ban follows an 22 April 1991 notification from the CITES Secretariat asking all party nations to "take all measures" to prohibit trade with Thailand, recognizing that the country is unable to control wildlife trade as a result of inadequate laws and ineffective enforcement. Twelve European community nations have also taken steps to restrict wildlife trade with Thailand, and similar action is under consideration in Japan.

In 1990, the Interior Department's U.S. Fish and Wildlife Service seized illegal Thai shipments of ivory jewelry, sea

turtle products, leopard and tiger parts and products, and a wide range of reptile products such as shoes and belts. The seizures represented more than three times the normal rate of noncompliance in shipments of wildlife from other countries.

Thailand serves as a staging point for shipments of live cheetahs, tigers, bears, orangutans, and gibbons. Thailand is a signatory to CITES but has no effective means of enforcing CITES regulations and no laws to protect wildlife that enters Thailand from other countries. In practice this has meant that smugglers may obtain CITES permits from Thailand in an effort to slip illegal wildlife shipments past Customs and Fish and Wildlife Service inspectors.

Under the ban, the Fish and Wildlife Service will not clear for importation shipments of CITES wildlife that originate in Thailand or are re-exported to or through that country regardless of the documentation provided. Furthermore, the United States will not approve for export to Thailand from the United States any CITES-listed species. Shipments may be returned to Thailand or seized if they violate United States law.

Lujan said the United States will consider lifting the ban when sufficient evidence indicates that Thailand complies fully with treaty requirements.

National Institutes for the Environment Proposed

Despite a major public concern about environmental degradation and the state of the environment, environmental research is dramatically underfunded by the U.S. government. Environmental research receives only five percent as much government funding as is appropriated for biomedical research. Due to this underfunding, serious environmental problems are not being addressed and university researchers are hard pressed to secure funding in ecology and other environmental sciences. To address this situation a National Institutes for the Environment (NIE) has been proposed.

The NIE proposal aims to expand environmental research and education through a new interdisciplinary funding agency, analogous to the national Institutes of Health (NIH). A series of problem-oriented institutes are proposed to support research in the natural and social sciences to understand the root causes of environmental degradation and provide solutions for environmental problems.

The NIE would support mission-oriented research to address complex issues such as: global climate change, sustainable resource use, development of biotic resources, habitat destruction, species extinction, and the degradation of the environment.

The U.S. Congress has appropriated \$400,000 for the National Academy of Sciences to study the feasibility of creating the NIE and to examine the current situation of environmental research and training in the United States. Congressman Jim Saxton (R-NJ) has introduced a House of Representative resolution to demonstrate support for the NIE. More than 35 members of Congress have co-sponsored the resolution.

The NIE was the brainchild of Henry Howe, professor of biology at the University of Illinois at Chicago, and Stephen Hubbell, professor of biology at Princeton University. They organized and presently co-chair the Committee for the NIE, a non-profit organization.

David E. Blockstein is the Executive Director of the Committee for the NIE, and A. Karim Ahmed is the Secretary-treasurer.

The members of the Board of Directors include: J. Gus Speth, President of the World Resources Institute, John Robinson, President of the Beinecke Foundation, David Rockland, Executive Director of the Times-Mirror Magazines Conservation Council, and Judith Listanowsky, President of Environmental Education for Environmental Action.

Species Management Activities in the British Isles



Species Management Groups

The Joint Management of Species Group (JMSG) continues to foster and administer the establishment of coordinated captive breeding programs for threatened species in the British Isles. The JMSG focuses on mammals and birds. The Reptile Joint Management Group focuses on reptiles and amphibians. There are also other taxon-based groups such as the Anthropoid Ape Advisory Panel, the Parrot Working Group, and the Invertebrate Working Group. All of these groups are attempting to ensure the maintenance of genetically diverse and demographically stable populations of threatened species over the long term. In addition, the Conservation and Animal Management Committee of the National Federation of Zoos oversees a program of conservation and animal management related activities amongst its membership (50 collections). A small working group has recently been established to examine the merits of administering these various groups under one body and to look at the relationship with the EEP. This working group is chaired by Mr. Nick Jackson who is also Chairman of the Conservation and Animal Management Committee of the National Federation of Zoos.

Species Management Activities

The annual meeting of mammal species coordinators took place in November 1990 at London Zoo. Coordinators reports were given for all mammal species on List A and List B, apart from the primates. For primates and large cats there have been specialist taxon based workshops over the last year. In addition, the Anthropoid Ape Advisory Panel met in February 1991.

A workshop on large cats took place at the London meeting where the Persian Leopard, Snow Leopard, Clouded Leopard, Siberian Tiger, Sumatran Tiger, and Cheetah species management programs were discussed. A survey on accommodation for large cats had previously been carried out and the results were used in an attempt to improve the allocation of spaces to managed breeding programs rather than to hybrid and non-studbook animals.

Following the successful meeting on the coordinated breeding of captive primates at Edinburgh Zoo, a further meeting of primate species coordinators was held at Paignton Zoo in March 1991. Prior to this meeting, a detailed survey of accommodation for all primate species in the British Isles was performed by Neil Bemment and Roy Powell of Paignton Zoo. The results of this survey, in conjunction with the recommendations of the CBSG Primate Action Plan, were discussed in an attempt to manage resources currently allocated to all primate species more effectively in the British Isles, thereby maximizing the usefulness of captive breeding in our region as a conservation tool for this taxonomic group.

One of the main results of this meeting was confirmation that decisions about which species (and sub-species) to allocate resources to, should only be made on an international

basis and that regional planning is essential. For example, a viable managed captive population of the critically endangered Cotton-top tamarins exists in the British Isles. There are large breeding populations of captive Cotton-top tamarins in other regions (e.g. in North America, Continental Europe). Should one or more of these regions make the difficult decision to devote these resources to another endangered Callitrichid? Without careful international planning requiring long-term regional commitments, these decisions cannot be made with any level of confidence.

The annual meeting of bird species coordinators also took place in November 1990 at London Zoo. Coordinators reports were given for all bird species on List A and List B, apart from the parrots and cranes. For parrots and cranes there have been specialist taxon based workshops over the last year.

A workshop on cranes was held at the London Zoo. The management of the Red Crowned Crane, White Naped Crane, Wattled Crane and Stanley Crane in the British Isles was discussed. The second meeting of the Parrot Working Group took place in September 1990. Representatives from the International Council for Bird Preservation, the World Parrot Trust, the Parrot Society as well as other organizations concerned with this taxonomic group attended. Many aspects of parrot species management were discussed, and regional studbooks and coordinated breeding programs have been published or are in preparation for 13 threatened parrot species. Attempts to encourage the involvement of private owners of these rare species have met with mixed success.

The Reptile Joint Management Group met twice and has been reorganizing its structure and targeting species for coordinated programs. Les Brown, the Curator of Reptiles at Glasgow Zoo, is overseeing this process. The Invertebrate Working Group has been extremely active publishing the proceedings of the symposium on the management of invertebrates in captivity, and a series of codes of practice.

Some other activities concerned with species management which may be of interest include:

1. Over 50 regional studbooks have been published or are in preparation and almost all of these are now maintained using studbook computer software.
2. The Mammal and Bird Inventories continue to be published on an annual basis.
3. Since June 1990, the National Federation of Zoos has produced a monthly central list of surplus and wanted stock to improve the utilization of stock for species that do not have a coordinator.
4. A program of three-day intensive workshops on small population biology is being developed for species coordinators. These workshops will cover theory (e.g. population genetics, demography) and practice (e.g. software, data manage

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ment and analysis, strategies for implementing recommendations). The workshops will be limited to six participants and detailed case studies will be undertaken with a computer at hand for each participant. It is hoped that all species coordinators in the British Isles will have the opportunity to attend one of these workshops.

5. A project to produce detailed husbandry and welfare guidelines for animals maintained in zoos, primarily through collation of information from literature sources, began in June 1990. Amanda Lee was appointed to the post of Research Assistant. A standard format of headings under which the guidelines will be published was developed and draft guidelines have been prepared for Giraffes, Ratite birds (Ostrich, Emu, Rhea), and Cheetah which will be published shortly. The standard format will be sent to other organizations who have agreed to collate the information for the animal groups in which they have expertise.

This report was submitted by Dr. Peter Bennett, Conservation Coordinator, National Federation of Zoos, and Executive Secretary, Joint Management of Species Group. Dr. Bennett has since resigned this position to pursue other interests. For more information on the above activities, contact the National Federation of Zoos, Zoological Gardens, Regent's Park, London NW1 4RY, United Kingdom. Tel: 071 586 0230; Fax: 071 722 4427.

EEP News

EEP Conference Held in Budapest

The 8th EEP Conference was held in Budapest, Hungary, 12-15 May 1991. This was the first time an EEP meeting was organized in a non-northwest European country.

Seventy-five participants attended the conference, representing 17 European countries and 12 languages. Twenty-four of the participants were species coordinators, representing 50% of the European species coordinators. Others were members of the EEP Coordination Committee, members of species committees, and representatives of zoos. Altogether, 38 zoos were represented at the Conference.

Day one of the conference presented an overview of the backgrounds and current status of regional captive breeding programs in general and those of the European region in particular. This was necessary as many of the participants were attending an EEP meeting for the first time.

Day two focused on specific topics and problems in the on-going EEP breeding programs. Various aspects, such as training of coordinators and standardization of questionnaires were discussed in working groups. In addition, there were

meetings of the permanent working groups on research and computers.

Day three was dedicated to meetings of species committees. The organization of a number of such meetings in conjunction with the annual conference is new to the EEP. Altogether, ten species committee meetings were held.

Formation of Taxon Advisory Groups were also discussed. Special meetings were held on the possible initiation of bird and mammal TAGs which should result in the formation of TAGs on hornbills, cracids, storks, cranes, equids, and bears. A group of European bird curators/biologists was established which should stimulate the formation of further bird TAGs.

A meeting of the EEP Coordination Committee was also held. The committee decided to initiate four new EEP programs: Great Indian Hornbill *Buceros bicornis*; Asian Elephant, *Elaphus maximus*; Palm Cockatoo *Probosciger aterrimus*; and Rat Kangaroos, *Bettongia penicillata* and *Aepyprymnus rufescens*. One new regional studbook was also started; Californian Sea Lion *Zalophus californianus*. The EEP for the Reticulated Giraffe, *Giraffa cameloparda reticulata*, will be extended to cover all Giraffe subspecies. Surveys will be carried out with respect to eight EEP candidate species: Humboldt Penguin, *Spheniscus humboldti*; Mongoose Lemur, *Lemur mongoz*; Chimpanzee *Pan troglodytes*; African Hunting Dog *Lycaon pictus*; Amur Leopard, *Panthera pardus orientalis*; Hartmann Mountain Zebra, *Equus zebra hartmannae*; Cape Mountain Zebra, *Equus zebra zebra*; Banteng, *Bos javanicus*; and Golden Conure, *Aratinga guarouba*.

A proposal for the CBSG to organize a regional European CBSG meeting in conjunction with the annual EEP Conference 1992 was also made. Finally, the Coordination Committee extensively discussed the establishment of a pan-European zoo association of which EEP would be part in the future.

Spectacled Bear EEP Programme

The EEP programme for Spectacled bears, *Tremarctos ornatus*, has been in operation for several years, coordinated through Jersey Wildlife Preservation Trust. This small bear species is listed in the Red Data Book as 'vulnerable' and is declining in numbers throughout its range in South America. It is subject to a regional management programme in North America as well as in Europe. The North American programme is coordinated by Mark Rosenthal, the International Studbook keeper.

Captive breeding is an important part of the overall conservation strategy for this species, which includes establishment of reserves and ecological studies in the wild. The EEP population is expanding and the EEP is looking for new zoos willing to take on the species both within and outside Europe.

If anyone is interested in participating in the programme for this species, please contact: Bryan Carroll, Jersey Wildlife Preservation Trust, Les Augres Manor, Trinity, Jersey, Channel Islands.

This report was submitted by Koen Brouwer, EEP Executive Office.





News from Australian Regional Zoo Association

Following is the conservation and research news reported by the Australian Regional Association of Zoological Parks and Aquaria, Inc. (ARAZPA).

Zoonosis Survey

Forty-nine of the 51 staff at Auckland Zoo participated in a voluntary survey to determine the extent of exposure to disease organisms that can be transmitted between animals and people (zoonotic diseases). Staff were asked to submit blood and stool samples, and receive a simple skin test for TB. Disease agents selected for testing included Chlamydia, Leptospira, Brucella, Toxoplasma, Giardia and Hepatitis B. Other than Chlamydia, for which the exposure rate was 14%, results indicated a very low incidence of contact with these organisms. Chlamydia, the organism responsible for psittacosis in humans, is widespread in pigeons, waterfowl, and parrots, and we have yet to determine how our exposure rate compares with the general Auckland population.

The survey was designed to allow a comparison between all staff groups in the Zoo so that specific areas of risk, relating to particular work areas, could be identified if present. Full results will be published, but in the meantime, anyone interested in further details should contact Richard Jacob-Hoff, Senior Curator at Auckland Zoo.

Chameleon Birth

After almost three years of searching and attending to bureaucratic requirements, two pairs of Jackson's Chameleon (*Chameleo jacksoni*) were received by Melbourne Zoo in November 1990. This marked the return of this fascinating group of reptiles to the Australasian region after an absence of 19 years. On 9 April, 1991, 143 days after arrival, ten live young were born to one of the females. A further ten stillborn young were also passed. The young chameleons averaged 0.4 g and 54 mm total length (27 mm snout-vent length) at birth. This is the first recorded captive birth of the species in an Australasian zoo, although the female may have arrived gravid from Oklahoma City Zoo, USA.

Fig Parrot Survey

Currumbin Sanctuary is undertaking a worldwide survey of Double-eyed Fig Parrots, (*Cyclopsitta diophalma*). The survey has been forwarded to everyone known to have held or currently holding this species. It seeks data on housing, diet, clutch details, and general breeding information, and will hopefully provide a basis for improved captive breeding and management.

North Island Wekas

A proposal has recently been made to the Department of Conservation (DOC, N.Z.) by members of the Royal Forest and Bird Society to establish a captive-breeding program for the North Island Weka. The program would initially call for setting-up some 20 captive pairs for breeding, with the object of producing 30-100 chicks a year for release into suitable habitat. The Otorohanga Kiwi House has been the origin of most of the 25 specimens currently in captivity and has proposed involvement in this expanded program. The proposal has been well received by DOC, who are also considering further surveys of wild populations.

Siamang Birth

Itam and Iuri, the breeding pair of Siamangs at Auckland Zoo, produced their second offspring on 25 April 1991. The sex of the infant has not yet been determined as the baby is closely guarded by its parents. Both parents are involved in the baby's care and their two-year-old daughter, I'Sepilok, is taking an active interest.

A recent survey of breeding results from 230 captive Siamangs held in 61 zoos found that Auckland's male is the youngest sire on record. Born in the Berlin Zoo, he was only four years old at the time of the first conception. This compares to the average age for sexual maturity of 8-10 years in this species. Iuri, the mother, is 12-years old and originated in Adelaide Zoo.

Action Plan for Australian Reptiles

The Australian Museum has been contracted by the Australian National Parks & Wildlife Service, under its Endangered Species Program, to conduct an overview of the conservation status of the Australian reptile fauna. The outcome of the program will be the production of a National Action Plan for Endangered Australian Reptiles. To accomplish this task, a questionnaire has been designed to gather and refine information from individuals and organizations on endangered, vulnerable, and rare Australian reptiles. The final document will be an essential source for the operations of the Herp TAG and contact has been established with the organizers. Further details can be obtained from either Dr. H. G. Cogger (Consultant, Reptile Action Plan) or Elizabeth Cameron, at the Australian Museum, P.O. Box A285, Sydney South, N.S.W. 2000, Australia.

South Island Skink Meeting

Orana Park Wildlife Trust hosted a workshop on South Island Skinks on 26 March 1991. Discussions centered on (*Leiopisma grande*, *L. otagense* and *L.o. waimatense*). Repre

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representatives of DOC, DOC Threatened Species Unit, Mt. Bruce, Orana Park, and Canterbury Museum met to discuss the current status of these skink species and if captive breeding was seen as a viable option and how it might best be undertaken. Proceedings will be available.

Tuan Reintroduction

Tuans, or Brush-tailed Phascogales (*Phascogale tapoatafa*), are being captive bred at Healesville Sanctuary for experimental release into selected areas of Victoria. The species is now extinct over more than a third of its former Victorian range and the initial aim of the program is to develop and test reintroduction methods. Current plans call for releasing groups of 8-12 animals into carefully-selected habitat. Radio-collared animals will be located daily to provide information on nest sites and long distance movements will be tracked from a plane with the help of a special wing-mounted aerial system. The release program is a joint effort between Healesville Sanctuary and Chicago Zoological Society.

Australasian Species Management Program

The mission of the Australasian Species Management Program (ASMP) is: "To contribute to conservation, regionally and internationally, by assisting in the preservation of biodiversity and the prevention of species extinctions through the cooperative management of wildlife in the Australasian region."

The past year has been one of great progress for the ASMP. The organization infrastructure has been streamlined to more clearly define procedures, responsibilities, and obligations of participants, ensuring logistical support for the enthusiastic endeavors of species coordinators and Taxon Advisory Group (TAG) convenors. Publication of a regional animal collection planning document, in the form of a substantially revised and improved annual census, has made a major contribution to the informed decision-making which underpins progress towards a coherent and rational regional conservation action plan.

Role and Evolution

This collaborative undertaking by Australian and New Zealand zoos directs priority to the conservation of species which are rare in the wild, and seeks a pro-active role in the support of wild populations through captive breeding programs. In addition, the development of the ASMP acknowledges that quarantine and importation restrictions, together with high transport costs and the limited size of the Australasian zoo collection, requires skillful and responsible development of self-sustaining captive populations for many species.

The primary activities of the ASMP are: (1) The classification of taxa into categories based on regional conservation and resource priorities; (2) the publication of an Annual Regional Census and Plan incorporating data on the collections of participating zoos; (3) development of a computerized database, in association with ISIS, to support genetic analysis and the preparation of studbooks; (4) the generation of Species Management Plans by appointed Species Coordinators; and (5) professional support through the organization of workshops and training programs.

Workshops

During the year, successful workshops were held by a number of ASMP groups. The Animal Records Officers from ten participating zoos met at Taronga Zoo (Sydney) in a productive workshop which achieved clearly defined objectives and established a professional communications network. A subsequent workshop by the herpetological TAG made substantial progress towards development of a regional collection plan for reptiles and amphibians. In addition to these meetings, sub-regional workshops were held on New Zealand Birds and South Island Skinka in New Zealand, and on Tasmanian Devils at Healesville Sanctuary, strengthening future directions for the joint management of these animals in conjunction with State or National wildlife authorities.

More recently, at the annual conference of ARAZPA (Australasian Regional Association of Zoological parks and Aquaria), species management workshops involving all ASMP TAGs concentrated attention on the other major taxonomic groups represented in Australasian collections. A structured agenda focused on the allocation of regional priorities to species in the Australian—New Zealand collection. The general philosophy underlying this process was a recognition of the need to develop a uniformity of approach that would allow better communication and sharing of ideas between TAGs so that a cohesive regional strategy can be developed. The Regional Prioritization Criteria which were established by these workshops embrace consideration of conservation potential (status in the wild, availability of appropriate founders, adaptability to captive husbandry and breeding, potential for successful reintroduction), biogeographical significance for Australasia, educational and cultural significance, regional resources, and articulation with other regional or international action plans.

Other Regional Developments

For a growing number of species, the incorporation of privately-owned animals into the managed gene pool is essential to ensure the long term viability of our captive populations. The formation of ARAZPA and the establishment of the Species Management Coordinating Council (SMCC) now includes this important group.



A further exciting development, taking place in New Zealand, is the formulation of an Exhibited Animals Welfare Code which recognizes ARAZPA as the regional industry's representative body and the ASMP as the mechanism through which the distribution of managed species is regulated.

Key Performance Indicators (KPIs) based on program goals have been established to enable us to objectively evaluate the ASMP's progress towards stated objectives.

In Progress

Current activities include: (1) expansion of the number of TAGs to improve taxonomic scope (including separate groups, for example, for invertebrates, fish, and several avian groups); (2) further development of Species Coordination appointments; (3) implementation of regional management classification and development of regional action plans for taxonomic groups as well as individual species; (4) development of training programs for Species Coordinators; (5) establishment of Contractual Agreements with Contributing Institutions; (6) implementation of TAG workshop program; and (7) publication of an Annual Report covering the 1990-91 period.

Regional Office

The ASMP office has recently been established in Perth (Western Australia). It is currently staffed by the Conservation Coordinator, Dr. Barbara Porter, who will soon be assisted by a part-time secretary. For additional information, contact: Dr. Barbara Porter, P.O. Box 44, Mt. Helena, Western Australia 6555, Australia. Phone: (09) 574 7273; Fax: (09) 574 7278.

This report was submitted by Dr. Barbara Porter, ASMP Conservation Coordinator.

AAZPA Conservation News

AAZPA Reintroduction Advisory Group to Form

A Reintroduction Advisory Group is being organized under the auspices of the AAZPA Conservation Program. The committee will serve as a clearinghouse for information regarding reintroduction programs and advise the AAZPA Board, WCMC and the Director of Conservation and Science on matters related to reintroduction efforts. Membership is open to those individuals who have direct experience with the biological, political, economic or educational aspects of wildlife reintroduction programs. For further information, contact Dr. Ben Beck c/o the National Zoological Park, 3000 Block, Connecticut Ave NW, Washington, D.C. 20008, USA.

SPMAG Ready to Assist in SSP Masterplanning Efforts

The AAZPA Small Population Management Advisory Group (SPMAG) is now ready to assist North American SSP coordinators and propagation groups in completing their initial masterplans or masterplan up-dates. The group currently has 18 regular members and four advisors and is coordinated by AAZPA Conservation Biologist, Dr. Robert Wiese. For further information, contact Robert Wiese at the AAZPA Conservation Center, 7970-D Old Georgetown Road, Bethesda, MD 20814, USA. Tel: (301) 907-7777; fax: (301) 907-2980.

International Bonobo Workshop Hosted by San Diego Zoo

An international Bonobo Workshop was held at the San Diego Zoo from 5-7 May 1991. Representatives from zoos, universities, government wildlife agencies and conservation organizations discussed the future of the bonobo or pygmy chimpanzee. Nearly 50 specialists participated, including Dr. George Rabb, Director of the Chicago Zoological Park and Chairman of the IUCN SSC; Dr. Russell Mittermeier, President of Conservation International and Chairman of the IUCN Primate Specialist's Group; Dr. Ulysses S. Seal, Chairman of the IUCN CBSG; Dr. Michael Hutchins, AAZPA Director of Conservation and Science; Gay Reinartz, Bonobo SSP Coordinator; and Bruno Van Puijenbroek, Bonobo EEP Coordinator. Also in attendance were several Japanese and American field researchers and two representatives of scientific and conservation organizations in Zaire: Drs. Bihini Won Wa Musiti and Zana Ndontoni. A preliminary plan was developed for the conservation of major forest blocks in Zaire, with a focus on bonobos. A steering committee was formed under the leadership of Dr. Mittermeier, the purpose of which will be to develop a more detailed proposal. The conference organizers, Dr. Don Lindberg, Rick Barongi and the San Diego Zoological Society, deserve credit for hosting a very successful meeting.

AAZPA Zaire Fauna Interest Group to Form

A Zaire Fauna Interest Group (FIG) is forming under the auspices of the AAZPA Conservation Program. The group is open to those individuals who have an interest in the fauna of Zaire and its conservation. Zaire is one of the world's mega-diversity countries and still has great potential for conservation work. Some SSP species endemic to the country include the bonobo and okapi. For further information, please contact John Lukas, White Oak Plantation, 726 Owens Road, Yulee, FL 32097 or Rick Barongi, San Diego Zoo, P.O. Box 551, San Diego, CA, USA

International Rhino Conference Hosted by San Diego Zoo

An International Rhino was held in San Diego from 9-11 May 1990. Hosted by the San Diego Zoological Society, the meeting drew over 300 specialists from 30 different countries. Nearly 40 technical papers were presented on every aspect of

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rhino biology and conservation. The conference brought together representatives from zoos; conservation organizations, such as the World Wildlife Fund; government wildlife agencies, such as the U.S. Fish and Wildlife Service; and various support organizations. Highlights included keynote addresses by Dr. Esmond Bradley Martin about the trade in rhino products and two appearances by Michael Werikhe, who opened the conference with the help of a group of schoolchildren and closed it with an emotional speech about rhino conservation. The conference organizer, Oliver Ryder and the San Diego Zoological Society are to be commended for their efforts. The diversity of the delegates and topics made the conference both stimulating and informative. Conference proceedings will be available by the end of the year. For further information, please contact Oliver Ryder c/o the Center for Reproduction of Endangered Species, San Diego Zoo, P.O. Box 551, San Diego, CA 92112, USA.

International Conference on Panda Conservation Hosted by National Zoological Park

An international conference titled: "Pandas: A Conservation Initiative" was held in Front Royal, VA from 2-8 June 1991. Hosted by the National Zoological Park, the conference brought together representatives from several different countries, agencies and organizations. Papers were presented on aspects of panda taxonomy, evolution, ecology and conservation. Various working groups developed specific recommendations for the implementation of a comprehensive management plan for both red and giant pandas, including both *in situ* and *ex situ* efforts. Delegates were present from the Chinese Zoo and Scientific Associations. The conference organizers, Devra Kleiman and Miles Roberts, deserve recognition for putting together a very productive meeting. For further information, contact Devra Kleiman c/o the National Zoological Park, 3000 Block of Connecticut Ave N.W., Washington, D.C. 20008, USA.

Resource Guide Being Developed for AAZPA Studbook Keepers, Species Coordinators and Taxon Advisory Group Chairs

The AAZPA Conservation and Science Office is producing a Resource Guide for Studbook Keepers, Species Coordinators, and Taxon Advisory Groups Chairs. In order for a program to operate effectively, it is critical that all participants understand their role and responsibilities within the organization. The Guide will include a list of specific responsibilities, a directory of individuals or committees to whom various questions should be addressed and updated versions of related protocols and petition forms. The Guides should be available for distribution at the Annual Conference in San Diego. For more information, contact: Robert Wiese, Conservation Biologist, AAZPA Conservation Center, 7970-D Old Georgetown Road, Bethesda, MD, USA.

AAZPA Forms New Taxon Advisory Groups

The AAZPA's Wildlife Conservation and Management Committee (WCMC) has reviewed and approved petitions to establish new taxon advisory groups. Those interested in receiving information should contact the following:

- *Ibises, Spoonbills, Herons*: Annarie Lyles, New York Zoological Park
- *Equids*: Cheryl Asa, St. Louis Zoological Park.
- *Marine Mammals*: Brad Andrews, Sea World of Florida, Orlando; Tom Otten, Point Defiance Zoo and Aquarium or Brian Joseph, Minnesota Zoological Garden
- *Prosimians*: Ingrid Porton, St. Louis Zoological Park or Helena Fitch-Snyder, San Diego Zoo
- *Ursids*: Leslie Johnston, Omaha's Henry Doorly Zoo or Mark Rosenthal, Lincoln Park Zoological Gardens, Chicago

Taxon Advisory Groups to Form

Preliminary efforts are underway to establish two new AAZPA taxon advisory groups. Those interested in receiving information should contact the following:

- *Rodents and Lagomorphs*: Sandra Kempke, Baltimore Zoo
- *Tapirs*: Rick Barongi, San Diego Zoo

SSP Masterplanning Session Held for Partula Snails

A masterplanning session was held for the Partula snail SSP from 14 to 15 July 1991 at the St. Louis Zoological Gardens. The meeting was attended by Ron Goellner, Species Coordinator; Steve Conners, Studbook Keeper; several members of the propagation group; Robert Wiese, AAZPA Conservation Biologist; Randy Morgan, Chair, AAZPA Invertebrate TAG and member of the IUCN CBSG Invertebrate Captive Action Plan Working Group and Tom Foose, Executive Officer, IUCN CBSG. Dave Clarke of the Invertebrate Conservation Centre (ICC) of the Zoological Society of London also attended the meeting representing the Partula program in the United Kingdom. Development of a cooperative international breeding program was approved, as well as the organization of a "core-group" which will direct the program. Use of new computer software, CERCI, developed by the ICC especially for the unique challenges presented by invertebrates was also approved.

SSP Masterplanning Session Held for Virgin Island Boa and Dumeril's Ground Boa

A masterplanning session for Virgin Islands Boa (*Epicrates monensis*) and Dumeril's ground boa (*Acantophis dumerili*) was held from 31 May to 2 June 1991 at the Toledo Zoological Gardens. This was the initial masterplan meeting for the Virgin Islands boa under the direction of Species Coordinator, Peter Tolson of the Toledo Zoological Gardens. It was decided to manage the St. Thomas and Puerto Rican populations separately. The Masterplan includes breeding recommendations

for the present founders, plans to acquire additional founders and a future reintroduction program.

The Dumeril's ground boa Masterplan, directed by Species Coordinator, John McLain, of the San Antonio Zoological Gardens and Aquarium, was updated to reflect recent resolution of several multiple parentage questions by DNA fingerprinting. As a result of new analyses, the number of effective founders has been increased significantly. Also participating in the masterplanning session were R. Andrew Odum, Toledo Zoological Gardens, Robert Wiese, AAZPA Conservation Biologist and Bern Tryon, Knoxville Zoological Gardens.

Knoxville Zoological Gardens Signs Cooperative Management Agreement for Endangered Bog Turtles

The Knoxville Zoological Gardens has signed a renewable eight-year agreement with the Nature Conservancy, Tennessee Wildlife Resources Agency, and a private landowner to protect the largest and one of the last optimum habitats for the endangered bog turtle (*Clemmys muhlenbergii*) in Tennessee. Bern Tryon, Curator of Herpetology, has led efforts to preserve this species in the state, where it is currently known from only two populations. The project, which has been endorsed by the AAZPA Chelonian TAG, is an excellent example of the *in situ* conservation efforts being advanced by AAZPA institutions.

Behavior Workshop Held at Metropolitan Toronto Zoo

The Sixth Annual Applying Behavioral Research to Zoo Animal Management Workshop was held from 9 to 15 June 1991 at the Metropolitan Toronto Zoo. The eight-day workshop was intended to train zoo professionals in the application of observational research techniques and to show them how such data can be used to improve animal management and propagation. This year's instructors were Drs. Jill Mellen, Washington Park Zoo, Portland, Oregon and Beth Stevens, Zoo Atlanta. Marilyn Cole deserves recognition for serving as coordinator for the Metropolitan Toronto Zoo. Nearly 30 individuals, representing 16 different zoological institutions, universities, and government agencies participated. Any institution interested in hosting the workshop in 1993 or 1994 should contact Dr. Michael Hutchins, AAZPA Director of Conservation and Science, AAZPA Conservation Center, 7970-D Old Georgetown Road, Bethesda, MD 20814, USA.

Proceedings of a Symposium on the Application of Biotelemetry to Captive Animal Care and Research

Proceedings of a symposium entitled "Biotelemetry Applications to Captive Animal Care and Research" will be available from the AAZPA within the next few weeks. The volume, edited by Dr. Cheryl Asa of the St. Louis Zoological Park, consists of six papers presented at the 1990 AAZPA Annual Conference in Indianapolis, Indiana. The volume is the first in a series of new AAZPA publications focused on zoo biology and conservation. Series editors are Drs. Chris Wemmer of the National Zoological Park's Conservation and Research

Center, Front Royal, VA and Michael Hutchins, AAZPA Director of Conservation and Science. Cost of the volume is not available at this time, but more information can be obtained by writing Robert Wagner, Executive Director, AAZPA, Oglebay Park, Wheeling, WV 26003-2283.

AAZPA Hires New Conservation Biologist

The AAZPA Conservation Center has hired a second Conservation Biologist. Kevin Willis holds a Masters Degree in Biology with a Minor in Statistics from Texas Tech University. Mr. Willis, who has been working as a Research Technician at the Savannah River Ecology Laboratory in Georgia, is an expert in population ecology, population genetics, and computer modeling.

This report was submitted by Michael Hutchins, Ph.D., AAZPA Director of Conservation and Science and Robert Wiese, Ph.D., AAZPA Conservation Biologist

Pew Awards Grants to Ten Environmental Problem-solvers

The Pew Charitable Trusts has awarded grants of \$150,000 each to ten environmental scientists. The Pew Scholars Program in Conservation and the Environment was established in 1988 to encourage individual development and personal achievement, cross-disciplinary problem-solving, and innovative, practical approaches to meet the changing needs of society. The grants, awarded at \$50,000 per year for three years, may be applied to any project and location of their choosing. This year's awardees are:

- Kamaljit Bawa, University of Massachusetts
- Ashok Gadgil, Lawrence Berkeley Laboratory
- Russell Greenberg, Smithsonian Institution Environmental Research Center
- Calestous Juma, African Centre for Technology Studies
- Georgina Mace, Institute of Zoology, London
- Donella Meadows, Dartmouth College
- Constance Miller, U.S. Forest Service
- Carl Safina, National Audubon Society
- Mark Sagoff, University of Maryland

Conservation Biology Bibliography

As part of the Captive Breeding Specialist Group's philosophy of creating and maintaining channels of information among members of the conservation community, we will periodically publish scientific references deemed relevant to our common goals. This list is not intended either to be inclusive or exclusive; suggestions from our readers of relevant literature are welcome. Additional references will be printed in future issues.

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Following is a partial listing of the 1991 CBSG membership. Addresses and telephone/telefax numbers are included so that members can contact each other. Because of space limitations, only a partial list could be published in this issue. The rest of the membership was published in the last issue of CBSG News.

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Black-footed Ferrets Scheduled for 1991 Reintroduction

All the known black-footed ferrets (*Mustela nigripes*) have been in captivity since 1987. From a low of 17 animals then, the population has now reached 180 animals. Ferrets are currently being bred at the Sybille Wildlife Research and Conservation Unit in Wyoming, the National Zoological Park's Conservation and Research Center in Virginia, and the Henry Doorly Zoo in Nebraska. Fifty kits were born at the Sybille Unit last year; 11 at the National Zoo; and 2 at Henry Doorly. Two additional facilities are now participating in the recovery effort: Louisville Zoological Park in Kentucky and the Cheyenne Mountain Zoo in Colorado. Another two facilities are scheduled to participate in breeding effort this year: the Phoenix, Arizona Zoo and the Toronto, Ontario Zoo. The captive population is approaching the level where it would be feasible to begin reintroduction back into the wild in autumn, 1991.

In November, 1990, the The U.S. Fish & Wildlife Service (USFWS) and the Wyoming Game and Fish Department decided that the first reintroduction site would be at Shirley Basin, Wyoming. This site is a high prairie area south of Casper, Wyoming containing a 39,000-acre white-tailed prairie dog (*Cynomys leucurus*) complex. This complex is critical for ferret reintroduction as prairie dogs are the ferret's main prey. Initially, about 50 ferrets are scheduled for release. The exact number and sex ratio have yet to be determined. The USFWS and the state of Wyoming are preparing a draft environmental assessment and management plan for the Shirley Basin reintroduction. The site where the last remaining wild ferrets were discovered, Meeteetse, Wyoming, will serve as a back-up site.

All released ferrets will be marked and equipped with radio telemetry devices. The ferrets will be released in litter or social groups and will be acclimated at the release site for at least ten days prior to release.

CBSG Activities Schedule

Below is a schedule of meetings and activities undertaken by the CBSG Chairman, Ulie Seal, and the Executive Officer, Tom Foose. Individuals wishing more specific information can contact the CBSG office.

September

- 5 - 6 New Orleans: Audubon Breeding Center
- 14 - 16 San Diego: SSP & AAZPA Mtg.
- 17 - 22 China: Giant Panda Meeting
- 23 - 26 Singapore: Hornbill Workshop
- 27 - 29 Singapore: CBSG Meeting
- 30 - 2 Singapore: IUDZG

October

- 2 - 5 Bogor, Indonesia: Asian Rhino Workshop
- 6 - 9 Kobi, Japan: JAZGA SSCJ Mtg.
- 17 Minnesota: Interprofessional Association
- 21 - 24 St. Vincent's: Carribean Parrots PVA
- 25 - 1 Kenya: Tana River Primate Reserve CVA

November

- 2 - 5 Nairobi: Black Rhino PVA
- 12 Chicago: Lincoln Park Zoo
- 17 - 25 SSC Steering Committee

December

- 2 - 5 New Zealand: Kaka/Kea PVA Workshop
- 15 - 5(Jan) Vacation

January, 1992

- 7 - 9 Minnesota: Kirtland's Warbler PVA

February

- 10 - 22 Caracas: Parks Congress - Workshop
- Venezuela: Spectacled Bear PVA
- 23 - 29 St. Louis: AAZPA Conservation Academy (Foose)

March

- 6 - 14 Front Royal: SPMAG Workshop (Foose)

April

- 5 - 10 Australia: ARAZPA, CBSG Regional, Marsupial GAP
- 10 - 15 New Zealand: Penguin PVA
- 13 - 18 Morocco: Rabat Zoo - Waldrapp Ibis PVA
- 24 - 28 Dallas: Regional Bird Curators (AAZPA)

Meetings...

International Conference on Molluscan Conservation, 10-12 September 1991, Glasgow, Scotland. Contact: Fred Woodward, International Conference on Molluscan Conservation, Kelvingrove Museum & Art Gallery, Kelvingrove, Glasgow G3 8AG, Great Britain. Tel: (041) 357 3929; Fax: (041) 357 4537.

Association of Avian Veterinarians Annual Conference, 23-28 September, Chicago, Illinois, USA. Contact: AAV Conference Office, 1625 S. Birch St., Suite 106, Denver, CO 80222, USA. Tel: 303-756-8380; Fax: 303-759-8861.

Captive Breeding Specialist Group Annual Meeting, 27-29 September 1991, Singapore. Contact: CBSG, 12101 Johnny Cake Ridge Rd., Apple Valley, MN 55124 USA.

Conservation Biology in Australia and Oceania, 30 September - 4 October 1991, Queensland, Australia. Contact: Dr. Peter Hale, Centre for Conservation Biology, University of Queensland, Australia Q.4072. Tel: 07-3651391; International: 617-3651391; Fax: 617-3651655.

Regional Meeting of the Crocodile Specialist Group and Workshop on Farming, 11-14 November 1991, Santa Marta, Columbia. Contact: Crocodile Specialist Group, Florida Museum of Natural History, Gainesville, FL 32611, USA. Tel: (1) 904-392-1721; Fax: (1) 904-392-9367.

The Sixth World Conference on Breeding Endangered Species In Captivity; The Role of Zoos in Global Conservation, 4-6 May 1992, Jersey, Channel Islands. Contact: Jeremy J. C. Mallinson, Zoological Director, Jersey Wildlife Preservation Trust, Les Augres Manor, Trinity, Jersey JE3 5BF, Channel Islands. Tel: 0534 64666; Fax: 0534 65161.

Seventh International Snow Leopard Symposium, 26-30 July 1992, Xining, Qinghai Province, People's Republic of China. Contact: International Snow Leopard Trust, 4649 Sunnyside Ave. N., Seattle, WA 98103, USA. Fax: 206-632-3967.

Third International Aquariology Congress, 25-29 April 1993, Boston, Massachusetts, USA. Contact: Third International Aquariology Congress, New England Aquarium, Central Wharf, Boston, MA 02110, USA. Tel: 617-973-5200.

EEP Species Coordinators Conference, 5-8 July, 1992, Edinburgh, Scotland. Contact: EEP Executive Office, c/o Amsterdam Zoo, P.O. Box 20164, 1000 HD Amsterdam, The Netherlands. Tel: 31 20 620 74 76; Fax: 31 20 625 39 31.

Reader Survey

The CBSG needs information from our readers in order to develop an effective communication network. If you are interested in receiving this newsletter and in helping with the goals of the CBSG, please take a few minutes and complete the below questionnaire. *Current CBSG members do not need to complete this form.*

Title: Prof. _____ Dr. _____ Mr. _____ Ms. _____ Other _____

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My areas of interest and specialization are: _____

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Thank you for your cooperation. Please remove this page and mail to:

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Help! We're looking for information!

CBSG is seeking information on zoo support of protected areas. If your institution is actively involved in the support of wildlife parks, reserves, or other habitats supporting critical flora and/or fauna, we would like to know about it. The results of this survey will be presented in a future issue of CBSG News. For an example of the type of program that is of interest, see the article entitled, "Minnesota Zoo Reaches Out to Aid Ujung Kulon National Park" appearing in CBSG News, Volume 2, Number 2. Please send us any project summaries or reports describing such activities.

YOUR NAME: _____

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CBSG News



*Newsletter of the Captive Breeding Specialist Group
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