



CBSG News

Inside...

- World Conservation Strategy
- Genetic Banking
- Conservation Coordinators
- Regional Reports
- ISIS News

Volume 2
Number 4
December, 1991

Special Double Issue of Newsletter: Reports from the Annual CBSG Meeting in Singapore

The growth in regional zoo programs and in collaborative conservation management during the past year have been spectacular. The number of regional programs with coordinators or representatives has grown from three to 14 in the past three years. These people were among the 160 participants in the annual CBSG meeting held in Singapore 27-29 September 1991. Reports from these regional representatives are included in this and the next issue of the Newsletter. Both issues are being mailed together so that you will have a complete report from all of the working groups. Another result of this growth in regional zoo associations is the planning of regional CBSG meetings in India, Africa, Europe, Australia, and Japan. We hope that these meetings will assist expansion of the CBSG network of zoo, wildlife, and conservation people and facilitate the development of collaborative programs within and between regions.

A stimulating set of presentations on Genome Resource Banking was made at the Singapore meeting by members of this working group. This group has prepared a report which was distributed at the meeting and copies are still available from the CBSG office. This working group formulated a draft resolution, presented in the Newsletter, which was adopted by the CBSG at the meeting and has been endorsed by the SSC. The potential for application of these technologies is expanding rapidly and trial programs are being initiated in the Felidae, Cervidae, Bovidae, and other groups.

The 'Terms of Reference' of the CBSG and other interdisciplinary Specialist Groups (Veterinary, Reintroductions, Sustainable Use, Trade, and CBSG) have been reviewed and updated by the SSC to update the responsibilities of the respective groups. The revised terms of the CBSG and an article describing some of CBSG's activities and relationships to the other Specialist Groups, that will appear in the SSC publication 'SPECIES', are included in the Newsletters.

Systematic development of priorities for conservation action for vertebrate species has long been recognized as necessary if we are to make effective use of our resources for intensive management of threatened populations in the wild and captivity. A process to accomplish this task is evolving through a series of workshops. The Mace/Lande criteria are being employed and tested in these workshops as a basis for assigning category of threat. This population biology based assessment makes use of available information on the population numbers of each species, trends in these numbers, their fragmentation into subpopulations, area of distribution, and threats. Seven workshops covering the Primates, Felidae, Waterfowl, Cervidae, Asian Hornbills, Antelope, and Parrots have been conducted in collaboration with the appropriate taxon Specialist Groups and the Taxon Advisory Groups from the zoo community. Draft documents have been prepared from each workshop and are under review. Summaries from the Primate, Felid, and Waterfowl workshops are in the Newsletter. There are plans to prepare similar conservation assessments and plans for all terrestrial vertebrates.



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

Ulysses S. Seal, CBSG Chairman

Captive Breeding Specialist Group Conservation Advisory Council

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
- Dutch Federation of Zoological Gardens
- El Paso Zoo
- Emporia Zoo
- Federation of Great Britain and Ireland Zoos
- Givskud Zoo
- Granby Zoological Society
- 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
- Paradisepark
- Pencoed 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
- Toledo Zoo
- Twycross Zoo
- Union of German Zoo Directors
- Urban Council Hong Kong
- Washington Park Zoo
- Wildlife Preservation Trust International
- Wilhemina 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
- Kevin Bell
- Caldwell Zoo
- Calgary Zoological Society
- Cologne Zoological Garden
- Copenhagen Zoo
- Cotswold Wildlife Park

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:

CBSG News
 12101 Johnny Cake Ridge Rd.
 Apple Valley, Minnesota 55124 USA
 Phone: (612) 431-9325
 Fax: (612) 432-2757

Chairman: Ulysses S. Seal, Ph.D.

Staff

Executive Officer: Thomas Foose, PhD
Editor: Terry J. Kreeger, DVM, PhD
Administrative Officer: Judi Mikolai
Secretary: Lisa Laqua

Contents...

CBSG Singapore Meeting Attendees	4
World Zoo Conservation Strategy	7
Animal Genetic Resource Banking	7
Draft Resolution on Environment and Development .	8
Permits and Legislation	9
Hornbill Action Plan Workshop	9
Regional Conservation Coordinators	10
AAZPA Conservation Program	13
ISIS Newsletter	Special Center Insert
Pan African Association of Zoos	15
Indian regional Coordinator's Report	16
Brazilian Conservation Activities	17
Mesoamerican Zoos	18
Australasian Species Management Program	19
EEP Report	20
Species Survival Committee, JAZGA	20
Southeast Asian Zoo Association	21
Zoo Conservation and Animal Welfare	23
Conservation Role of Zoos: Budgets and Priorities ...	23
CBSG Activities Schedule	25

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.



List of Attendees at the 1991 CBSG Annual Meeting

Mr. Mohd-Tajuddin Abdullah	Ibu Pejabat Jabatan Perlindungan	Malaysia
Mr. Zaaba Zainol Abidin	Ibu Pejabat Jabatan Perlindungan	Malaysia
Mr. Lyn de Alwis	Singapore Zoological Gardens	Singapore
Mr. David Anderson	San Francisco Zoological Gardens	USA
Mr. Brad Andrews	Sea World, Inc.	USA
Dr. B.M. Arora	National Zoological Gardens	India
Dr. Shigeharu Asakura	Tokyo Zoological Park Society	Japan
Mr. D. Ashari	Indonesian Zoological Parks Association	Indonesia
Mr. Jean-Francois Asmode	National Wildlife Research Center	Saudi Arabia
Ms. Anne Baker	Brookfield Zoo	USA
Mr. Jonathon Ballou	National Zoological Park	USA
Mr. Chris Banks	Royal Melbourne Zoo	Australia
Mr. Kevin Bell	Lincoln Park Zoo	USA
Dr. Blaszkiewitz Bernhard	Tierpark Berlin-Friedrichsfelde	Germany
Mr. Bruce Bohinke	St. Louis Zoo	USA
Mr. Hayes Caldwell	Caldwell Zoo	USA
Ms. Lorena Calvo	Wildlife Preservation Trust	USA
Dr. Jacob V. Cheeran	College of Veterinary & Animal Science	India
Dr. N. J. Collar	Int'l Council for Bird Preservation	United Kingdom
Mr. Carlo Custodio	Protected Areas & Wildlife Bureau	Philippines
Mr. Fred Daman	Royal Zoological Society Antwerp	Belgium
Dr. Leobert deBoer	Nat'l Foundation for Research Zool. Gardens	Netherlands
Mr. Michael Dee	Los Angeles Zoo	USA
Mr. John DeJose	Perth Zoo	Australia
Dr. J.H. Desai	Institute of India & Zoo Project	India
Ms. Alexandra Dixon	Zoological Society of London	United Kingdom
Ms. Majorie Doggett	Int'l Primate Protection League	Singapore
Mr. James G. Doherty	New York Zoological Society	USA
Dr. James Dolan	Zoological Society of San Diego	USA
Ms. Sue DuBois	Micke Grove Zoo	USA
Dr. Susie Ellis-Joseph	Minnesota Zoological Gardens	USA
Dr. Ardith Eudey	IUCN/SSC Primate Specialist Group	USA
Ms. Nina Fascione	University of Maryland	USA
Mr. Nathan Flesness	Int'l Species Information System	USA
Dr. Thomas J. Foosc	Captive Breeding Specialist Group	USA
Dr. Hans Fradrich	Zoological Garden Berlin	Germany
Mr. Clayton F. Freiheit	Denver Zoological Gardens	USA
Mr. Louis Garibaldi	New York Aquarium	USA
Mr. Paul Garland	Orana Park Wildlife Trust	New Zealand
Mr. Philippe Gaucher	Nat'l Wildlife Research Center	Saudi Arabia
Mr. Luud Geerlings	Stichting Crax	Netherlands
Dr. Arnaud Greth	Nat'l Wildlife Research Center	Saudi Arabia
Dr. Wolfgang Grummt	Tierpark-Berlin Friedrichsfelde	Germany
Mr. Steven R. Hage	Minnesota Zoo	USA
Mr. Bernard Harrison	Singapore Zoological Gardens	Singapore
Mr. Teruaki Hayashi	Adventure World	Japan
Mr. Charles Hoessle	St. Louis Zoo	USA
Dr. S.A. Hussain	Bombay Natural History Society	India
Dr. Michael Hutchins	American Assoc. of Zoological Park	USA
Mr. Kousuke Inakuma	Nagoya Higashiyama Zoological Garden	Japan
Mr. Saleh A.M. Ismail	Dubai Municipality	U.A.E.
Mr. James R. Jackson	Fossil Rim Wildlife Center	USA

Ms. Suzanne I. Jackson	Zoological Society of London	United Kingdom
Mr. Dieter Jauch	Wilhelma Zoological & Botanical Gardens	Germany
Dr. Leslie Johnston	Omaha's Henry Doorly Zoo	USA
Mr. Bent Jorgensen	Copenhagen Zoo	Denmark
Mr. Moongu Kang	Yongin Farmland Zoo	Korea
Mr. Peter Karsten	Calgary Zoo	Canada
Mr. Nobuyuki Katai	Fuji Safari Park	Japan
Dr. Werner Kaumanns	German Primate Center	Germany
Dr. John Kelly	Zoological Parks Board of NSW	Australia
Mr. Mohammad Khan	Wildlife Department - Kuala Lumpur	Malaysia
Dr. Mohammad A.R. Khan	Dubai Municipality	U.A.E.
Mr. Abdul Rhaman Khoja	Nat'l Wildlife Research Center	Saudi Arabia
Mr. Shoji Kitamura	Gumma Safari Park	Japan
Mr. John Knowles	Marwell Zoological Park	United Kingdom
Dr. Ilkka Koivisto	Helsinki Zoo	Finland
Mr. Atsushi Komori	Japanese Assoc. of Zool. Gardens & Aquariums	Japan
Mr. Palmer Krantz	Riverbanks Zoological Park	USA
Dr. Pushp Kumar	Kamalapuri Hyderabad, A.P.	India
Mr. Hidetoshi Kurotori	Ueno Zoological Gardens	Japan
Mr. Willie Labuschagne	Nat'l Zoological Gardens of So. Africa	So. Africa
Dr. Robert Lacy	Brookfield Zoo	USA
Dr. Juergen Lange	Zoo Berlin	Germany
Dr. Heekwan Lee	Yongin Farmland Zoo	Korea
Mr. Barry Lees	Wisatwari Indonesia	Singapore
Dr. Hon Keong Leong	Primary Production Department	Singapore
Mr. Alan A. Lieberman	Zoological Society of San Diego	USA
Mr. Nick Lindsay	Nat'l Commission for Wildlife	Saudi Arabia
Dr. Georgina Mace	Institute of Zoology	United Kingdom
Mr. Idris Abdul Malik	Zoo Negara Malaysia	Malaysia
Mr. Jeremy J.C. Mallinson	Jersey Wildlife Preservation Trust	Channel Island
Mr. Jansen Manasang	Taman Safari Indonesia	Indonesia
Dr. Terry L. Maple	Atlanta Fulton County Zoo	USA
Ms. Ph.D. Mitsuko Masui	Tama Zoological Park	Japan
Ms. Marlynn M. Mendoza	Protected Areas & Wildlife Bureau	Philippines
Ms. Judith Mikolai	Captive Breeding Specialist Group	USA
Dr. Graham F. Mitchell	Melbourne Zoo	Australia
Dr. Minoru Miyashita	Osaka Municipal Tennoji Zoo	Japan
Mr. Mubarak Ali Mohanna	Al Areen Wildlife Park	Bahrain
Mr. Kerry Muller	Wellington Zoo	New Zealand
Mr. Peter Muller	Zoologischer Garten Leipzig	Germany
Ms. Laura Mumaw	Auckland Zoo	New Zealand
Mr. Jonathon Murray	Carnivores/Reptiles	Thailand
Mr. Douglas Myers	Zoological Society of San Diego	USA
Mr. Shiro Nakagawa	Tokyo Zoological Park Society	Japan
Mr. Rikio Nakazawa	Hamamatsu Zoo	Japan
Mr. Khaja Nazimuddin	Jurong Birdpark	Singapore
Mr. Norio Nishikata	Saitama Children's Zoo	Japan
Dr. Gunther Nogge	Zoo Koln	Germany
Mr. P.J.S. Olney	Zoological Society of London	United Kingdom
Mr. Claudio Padua	Ipe Inst Pro Ecologia Brazil	USA
Mr. Paul Pearce-Kelly	Zoological Society of London	United Kingdom
Mr. Marcus Phipps	The Orangutan Foundation	Taiwan
Dr. Barbara Porter	Australian Species Management Program	Australia
Ms. Pat Quillen	Lubee Foundation & SOS Care Inc.	USA

Dr. Hugh Quinn	Topeka Zoological Park	USA
Mr. George B. Rabb	Chicago Zoological Society/Brookfield Zoo	USA
Mr. William A. Rapley	Metropolitan Toronto Zoo	Canada
Dr. Parntep Ratanakorn	Wildlife Research Laboratory	Thailand
Mr. Tim Redford	Safari World	Thailand
Dr. Frank Rietkerk	Nat'l Commission for Wildlife	Saudi Arabia
Mr. Mark Rosenthal	Lincoln Park Zoological Gardens	USA
Dr. Alex Rubel	Zurich Zoological Gardens	Switzerland
Mr. Essa Faraj Saad	Al Areen Wildlife Park	Bahrain
Dr. Masamichi Samejima	Nagasakibana Parking Garden	Japan
Ms. Karen Sausman	The Living Desert	USA
Mr. Teishin Sawa	Osaka Aquarium	Japan
Mr. Gerardus Scheres	Cracids Breeding & Conservation Center	Netherlands
Ms. Natasha Schischakin	Houston Zoological Gardens	USA
Dr. Gunther Schleussner	Vogelpark Walsrode	Germany
Mr. Ulrich Schurer	Zoologischer Garten Wuppertal	Germany
Mr. Paul Scobie	Int'l Species Information Systems	USA
Dr. Ulysses S. Seal	Captive Breeding Specialist Group	USA
Dr. Kenneth Searle	Hong Kong Zoological & Botanical Gardens	Hong Kong
Mr. Robert Seibels	Riverbanks Zoological Park	USA
Mr. Peter Shannon	Audubon Park Zoo	USA
Mr. S.C. Sharma	Ministry of Environment & Forestry	India
Ms. Sherry Sheng	Metro Washington Park Zoo	USA
Dr. Christine Sheppard	New York Zoological Society	USA
Ms. Teruko Simizu	Ichikawa Municipal Zoological & Botanical G.	Japan
Dr. Lee Simmons	Omaha's Henry Doorly Zoo	USA
Mr. John Spence	South Africa	So. Africa
Dr. Miranda Stevenson	Royal Zoological Society of Scotland	United Kingdom
Dr. Simon Stuart	IUCN	Switzerland
Mr. Timothy Sullivan	Chicago Zoological Society	USA
Mr. Yoshihiko Takaki	Saitama Children's Zoo	Japan
Mr. Miyake Takashi	Shizuoka Nihondaira Zoo	Japan
Dr. Richard Tenaza	University of the Pacific	USA
Dr. Ron Tilson	Minnesota Zoo	USA
Dr. Kristina Tomasova	Zoological Garden	Czechos
Mr. William Toone	Zoological Society of San Diego	USA
Dr. Itaru Uchida	Port of Nagoya Public Aquarium	Japan
Mr. Paul Van Den Sande	Royal Zoological Society of Antwerp	Belgium
Ms. Sally Walker	Zoo Outreach Organization	India
Mr. Vern Weitzel	Australian Nat'l University	Australia
Dr. Chris Wemmer	Smithsonian Institution	USA
Mr. Roger Wheeler	IUDZG	United Kingdom
Dr. Alan Whitmore	Carnivore Preservation Trust	USA
Dr. David Wildt	Smithsonian Institution	USA
Mr. Vivian John Wilson	Chipangali Wildlife Trust	Africa
Dr. Hon Mun Wong	Jurong Bird Park	Singapore
Dr. Michael Woodford	SSC/IUCN	USA
Dr. David Woodruff	University of California	USA
Ms. Wendy Worth	San Antonio Zoological	USA
Mr. Stephen Wylie	Oklahoma City Zoological Park	USA
Mr. Tunku Mohd Nazim Yaacob	Zoo Negara Malaysia	Malaysia
Mr. Yasushi Yamazaki	Tobe Zoological Park	Japan
Mr. Shiro Yoshizawa	Toyama Family Park Zoo	Japan
Mr. Stefano Zago	FOA of the United Nations	Malaysia

Working Group on the World Zoo Conservation Strategy (WZCS)

The Working Group recommends that:

1) As many as possible national, regional, and international zoo organizations, federations and associations should be initiated into the process of developing the World Zoo Conservation Strategy document, preferably by the end of October 1991.

2) The currently available draft document should be used as the basis for the above, accompanied by a summary of the comments, critique, and suggestions put forward by the members of the Editorial and Advisory Boards.

3) The zoo organizations to be involved will be invited to distribute the first draft document to their membership and to initiate discussions within their organizations.

4) Several relevant non-zoo organizations - such as WWF, IUCN, FAO and ICBP - be informed that the zoo community initiated preparation of a World Zoo Conservation Strategy, and that they be invited to comment on the subsequent drafts, starting with the one currently available. Endorsement of the final document by these organizations is of crucial importance, but can only be obtained when they are involved early in the process. IUDZG's president (and CBSG's chairman?) should contact these organizations.

5) Eventually the aim should be to produce two documents:

a. An exhaustive one which primarily serves the zoo community, presenting background information, lines of reasoning and argumentation, and giving guidance to the increased involvement of individual zoos, their directors, staff and governing bodies in conservation efforts. The current draft could serve as a basis for this document.

b. A more concise, structured, worded, and designed document intended to convince the non-zoo world (including governments, conservation organizations and a variety of relevant bodies and policy makers) of the crucial role that the zoo community has to play in global conservation of nature.

6) While the first draft document is being discussed in the world zoo community, the Editorial and Advisory Boards prepare:

a. A public relations plan for the future distribution and use of the final documents.

b. A proposal on the structure of the final documents.

c. A proposal with respect to the budget required to bring the entire project to a successful end.

7) Setting a deadline of 1 May 1992 for completion of the final documents - as initially suggested - would allow insufficient time for developing a broad base of the global zoo community. Considerably more time is needed for this, especially since this process is considered to be at least as important as the publication of the final documents.

8) A clear time schedule should be established. The 6th Conference on Breeding Endangered Species in Captivity (May 1992, Jersey) might be adopted as a deadline to present an overview of the progress made and to evaluate the ongoing

process. Which parts of the process need to be completed by May 1992 remain to be determined.

In addition to these recommendations, the Working Group felt that:

1) The World Zoo Conservation Strategy should be based on the most recent strategic documents on conservation, such as "Caring for the World" and the IUCN "Biodiversity" document, and should highlight IUCN's policy statement on Captive Breeding.

2) The World Zoo Conservation Strategy should clearly indicate the progress made in the zoo community in the past, and should set targets, goals, and objectives for the future to enable an evaluation at regular intervals by IUDZG and CBSG.

3) A mechanism should be developed to prevent "misuse" of the World Zoo Conservation Strategy, i.e. adoption of the strategy by institutions which do not meet sufficiently high ethical standards. The World Zoo Conservation Strategy might be used as an underlying philosophy for accreditation systems of national and international zoo associations.

4) Once the final documents have been completed, every effort should be made to have the publications translated into the languages of those countries that are most likely to desire it.

Proposed IUCN Resolution Statement on Animal Genetic Resource Banking for Species Conservation

Problem Statement

The IUCN holds that the successful conservation of species requires integrated management efforts to sustain available genetic diversity. These efforts include programs to protect and manage animal populations within their natural, native habitat (*in situ* conservation) and supporting programs that manage individuals, gametes and/or embryos outside of natural environments (*ex situ* conservation).

The IUCN recognizes that, although habitat protection is the most desirable approach for conserving biological diversity, supportive *ex situ* programs are essential in many cases. For example, such programs can deal effectively with short-term crises and with maintaining long-term potential for continuing evolution.

The IUCN further recognizes that the efficiency and efficacy of *ex situ* conservation can be increased many fold by applying recent advances in reproductive technology. These

include assisted or 'artificial' breeding and the low temperature storage (banking) of viable animal germ plasm, namely spermatozoa, embryos and oocytes. Germ plasm banks: 1) offer a high degree of security against the loss of diversity and, therefore, entire species from unforeseen catastrophes; 2) minimize depression effects of genetic drift and inbreeding; and 3) provide a powerful method for managing the exchange of genetic diversity among populations. Other conservation benefits include banks of serum, DNA and cultured cell lines from germ plasm donors which permit studies on disease status, detection of microbial antibodies, pedigree determination, taxonomic status, geographical substructure and cellular physiology.

The IUCN also recognizes that the establishment of a genetic resource bank must, through basic research, be matched by the development of technologies for its use as a genuine and practical conservation asset.

The development of genetic resource banking programs is hampered by the lack of guidelines for establishing such banks and for integrating them with overall conservation programs. As yet, no single organization with a role in the international coordination of conservation efforts has provided guidance.

Recommendation

The IUCN regards development of genetic resource banks as an essential component of integrated conservation programs. Therefore, the Captive Breeding Specialist Group recommends that a formal process be developed to formulate global guidelines to establish, operate, use, and review animal genetic resource banking programs for species at risk. The framework for international coordination of this type of program must be based upon agreements to cooperatively manage such species for demographic security and genetic diversity.

To achieve this recommendation, a Coordination Committee under the auspices of the Captive Breeding Specialist Group and others to be identified will:

1) Coordinate animal genetic resource banking activities within the Species Survival Commission and among regional captive propagation groups. This will be accomplished by integrating the genetic resource banks directly into the framework of population viability assessments and conservation Action Plans. These activities require an expert resource network to provide advice on all technical matters.

2) Establish guidelines for identifying taxa, species or populations that would benefit from genetic resource banks. These guidelines should be detailed and assist in the development of strategic Action Plans for conserving targeted animal populations. *The single most important consideration is to ensure that there is a defined conservation goal that requires the collection and storage of biological materials.* This requires that an integrated plan for a goal-orientated conservation program be established prior to initiating banking activities.

3) Establish a globally-standardized, record-keeping database for cataloging, managing, and pooling data on banked materials. It will be essential that these biological materials are

linked to individually identifiable source animals.

4) Provide expert technical advice to the appropriate taxon groups to assist in developing animal genetic resource Action Plans. The primary responsibility for developing Action Plans resides with those groups with specific responsibilities for *in situ* and *ex situ* conservation of specific taxa, species and populations. These groups should be encouraged by the Coordination Committee to include genetic resource banks as an integral component in their strategic conservation planning. The Coordination Committee will support the appropriate taxon groups to integrate information on: reproductive and genetic histories of *ex situ* and *in situ* populations; efficiency of reproductive technologies; areas requiring further research; types of biological materials requiring storage; appropriate protocols for banking biological materials; primary and secondary repository sites; strategies for using banked materials; and sources of funding.

5) Provide a mechanism for approval and periodic review of animal genetic resource banking Action Plans.

Draft Resolution on the United Nations Conference on Environment and Development

RECOGNIZING that conservation of the world's biological diversity is one of the most challenging and important issues for the current and coming decades;

RECOGNIZING the importance of zoos and aquariums in global efforts for the conservation of biological diversity;

RECOGNIZING that in the late 20th century we are coming to realize that biological resources have limits and that we are exceeding those limits, and that the current decade might be the last chance for the world community to formulate a strategy to save much of the diversity of life on earth;

AWARE that the General Assembly of the United Nations is convening a Conference on Environment and Development (UNCED) in June of 1992 in Rio de Janeiro, Brazil, and that the agreements reached at UNCED will help shape global conservation strategies for the foreseeable future;

ACKNOWLEDGING the paper prepared by the IUCN/SSC Captive Breeding Specialist Group on *ex situ* conservation of wild animal genetic resources for the second Preparatory Committee of UNCED;

CONSCIOUS that every species has a right to survival and that humans, as the dominant species affecting the biosphere, have a duty to protect this right, and that zoos in developing countries are a key to educating those who are ultimately going to be affected by the loss of biological diversity;

The 1991 Annual Meetings of the IUCN/SSC Captive

Breeding Specialist Group (CBSG) and the International Union of Directors of Zoological Gardens (IUDZG):

CALLS UPON all zoos and aquariums and other institutions associated with CBSG and IUDZG to impress upon their governments the key role that they have to play in the conservation of biological diversity;

DRAWS ATTENTION to the World Zoo Conservation Strategy as an important contribution to the deliberations at UNCED on biological diversity;

INSTRUCTS the Secretariats of CBSG and IUDZG to ensure that the international zoo community is represented at the NGO conference before the UNCED meeting, as well as attending UNCED itself.

Permits and Legislation

Draft resolution for IUCN:

CONSIDERING that continued global destruction of natural habitat has resulted in the decline and fragmentation of populations of endangered species and,

THAT the generally accepted recognition that small and/or fragmented populations are unlikely to survive the effects of the loss of genetic diversity inherent from inbreeding resulting when natural migration routes between isolated populations are lost and,

THAT the Convention On International Trade In Endangered Species of Wild Fauna and Flora (CITES) is an essential international tool to ensure that trade in wild species does not exceed sustainable levels and,

THAT artificial or assisted transfer of genetic material whether in the form of live animals, gametes, embryos, blood products, tissue, or DNA between populations will be essential to maintain genetic diversity and thus ensure the survival of the species and,

THAT any such movement or assisted transfer should be recognized by all parties and countries as essential to the effective global conservation strategy for preserving endangered species and,

THAT the goal of any such conservation strategy must ultimately be to preserve the species in its natural habitat and,

THAT scientifically managed captive propagation programs are an integral and essential part of the global conservation strategy to ensure the survival of threatened and endangered species in their native habitat and,

THAT under current practice the interpretation of CITES regulations and the resulting export/import permit policies and procedures of different regions and countries often varies markedly and,

THAT, in some instances, the processes have become so lengthy, cumbersome, redundant, and obstructive that they actively interfere with and impede effective conservation programs and,

THAT IUCN, SSC, CBSG and other conservation bodies (AAZPA, ECAZA, IUDZG, WWF, etc.) recognizing the need that the interpretation and application of CITES regulations and the resulting permit processes be handled uniformly and much more expeditiously administered than is often currently the practice in some countries.

The 1991 meeting of the Captive Breeding Group therefore recommends:

THAT all CITES management authorities develop efficient and rapid permit approval procedures that allow the transfer of live animals, gametes, embryos, blood products, tissue or DNA between nationally and internationally recognized conservation programs and facilities and,

THAT the permit procedures for movement of captive born live animals and their gametes, embryos, blood products, tissue, or DNA which are part of nationally and internationally recognized captive propagation programs (SSP's, EEP's, etc.) be greatly streamlined thereby facilitating the necessary development of important essential conservation programs.

THAT all parties engaged in such transfers recognize and accept the obligation to register their specimens in appropriate national and international collective data systems and participate in such systems as part of their conservation strategies and,

THAT a committee under CBSG be formed to assist in the implementation of these recommendations.

Recommendations from the Hornbill Action Plan Workshop

1. Resolution to be presented for ratification by CBSG and IUDZG:

Many Asian hornbill species are endangered by human activities. For this reason, CBSG supports CITES protection for all Asian hornbills.

2. Recommendations to be endorsed by IUDZG and published in the CBSG newsletter:

a. We urge all zoos to register their hornbills through a regional zoo association to enhance efforts for their conservation.

b. Because hornbills face multiple, increasing threats to their wild populations and because captive husbandry techniques are not yet sufficient to propagate hornbills reliably, we urge all zoos to initiate, participate in, and support research into captive management of hornbills.

c. Because reproduction of captive hornbills is neither consistent nor reliable, we urge that all captive hornbills be managed for propagation.

This report was submitted by C. Sheppard and W. Worth.

Regional Conservation Coordinators Committee Meeting

Overview

The CBSG Conservation Coordinator's Committee was officially formed at the 1990 CBSG Annual Meeting in Copenhagen. Its terms of reference are to guide and advise on development of global propagation and management programs through coordination of the interactions among the Regional programs. Twelve recommendations were presented by this Committee at the 1990 Session. For the most part, these recommendations have all been realized.

Summary tables of International and Regional captive propagation programs and taxon advisory groups are provided in the CBSG Briefing Book. Based on information available in advance of this meeting, there are 200 known programs in five regions worldwide: 119 unique to a single region; 49 operating in two regions; 17 in three regions, 12 in four regions; and three (probably four) in five regions. About half of these programs are for mammals.

Taxon Advisory Groups are also developing in many of the regions as a means to more systematically and strategically manage taxa and allocate resources. Taxon Advisory Groups are integral and interactive components of the Global Captive Action Plan process. The Action Plan process will continue and expand with an objective of recruiting even greater participation in the Captive Action Plans.

Regions and Coordinators

The current list of known organized or organizing Regions and their Coordinators include:

ASMP (Aust/NZ)	Barbara Porter
EEP (Europe)	EEP Executive Office: (Bert deBoer, Frank Princee, Koen Brouwer, Simone Smits)
JMSG (U.K.)	Nick Jackson, Chairman
SSCJ (Japan)	Atsushi Komori
SSP (No.America)	Michael Hutchins
AMAZOO (Meso America)	Lorena Calvo
SZB Brazil	Claudio Padua
APP Sub-Saharan Africa	Viv Wilson
Southeast Asia	Gen. Ashari
India and SAARC	B. Arora
China	To Be appointed
South America (Spanish)	To Be appointed
Mexico (Northern)	To Be appointed
Middle East and Arabia	Reza Khan
CBSG Executive Office	Thomas J. Foose

Advisers:

Int'l Studbook Coordinator	Peter Olney
ISIS Director	Nate Flesness
ISIS Programmer	Paul Scobie
Population Biologist	Robert Lacy

Recommendation: All zoos and aquariums of the world are encouraged to establish and participate in organized captive propagation programs, especially for threatened taxa.

Recommendation: As regional breeding programs are formed or expanded they are encouraged to attempt to encompass enough zoos and aquariums to permit the region to accommodate populations large enough to be viable components of the global system.

Recommendation: All such organized regions are encouraged to appoint a conservation coordinator as soon as possible. All such coordinators will serve on the CBSG Conservation Coordinators Committee.

Recommendation: When not enough animals in region to form a regional program, institutions should be incorporated into another region as recommended by the Global Management Committee if it exists or as permitted by a region to which an institution might apply if no Global Management Program and Committee exist.

Recommendation: The CBSG Executive Office member of the Committee will serve as its chair.

Studbook Issues

Expanding regional studbooks means that there may often be conflicts between regional studbook numbers versus international studbook numbers. This may cause confusion. Options to ameliorate this problem include:

- 1) Add a regional designation or "flag" to the regional numbers, e.g. BR or a numerical equivalent for Brazil. This solution will require that a code scheme be developed/adopted.
- 2) Coordinate the regional programs so that the regional numbers are unique (through ISIS and/or an International Coordinator). That person or ISIS could assign blocks of numbers to the regional studbooks.
- 3) Assign an International studbook keeper immediately for every program as soon as any regional studbook is established and assign numbers through that person.
- 4) Require use of transponders.

Recommendation: A working group should be formed consisting of an ISIS representative (Scobie), International Studbook Coordinator (Olney), and persons from several of the regions familiar with the Studbook software to formulate recommendation on how best to proceed with studbook problems. An interim recommendation from this committee is to use the regional "flag".

Nate Flesness spoke on ISIS and the future of studbook software. He described the current status of the two major studbook/population management systems (SPARKS and ZRSM). He also indicated a desire to merge the best of both to produce a new single system. There has been collaboration among ISIS, Dutch Foundation, and AAZPA over the last year toward this end.

Recommendation: All regional and international studbooks be computerized using either SPARKS or ZRSM software at this time. ISIS be encouraged and supported to proceed with the development of the new studbook/population management software and once available, all regional and international studbooks are to adopt its use.

There was discussion on the need for both global as well as regional summary statistics on the SPARKS Masterplan report. ISIS currently computes these statistics globally even when the "view" of the population has been selected to be regional (e.g. EEP). Modifying software so that either or both are available will require more ISIS programmer time, which is always limited.

Recommendation: Request that ISIS attempt to modify software as soon as resources permit to compute these statistics regionally in regional views. The option of a user-controlled "switch" would be optimal.

Recommendation: The Committee should explore with the International Studbook Keeper how it might assist more with coordination of studbooks, especially regional versus global.

Recommendation: Zoos and aquariums are encouraged to adopt the use of transponders as soon and as much as possible in accordance with CBSG guidelines on this matter.

Recommendation: The attempt to develop both Regional and Global archives for Studbooks and Masterplans was reaffirmed. The Regional Archives should be in the Regional Conservation Coordination Offices. The Global Archives should be at the CBSG/ISIS Offices, the International Studbook Coordination Office, and at the World Conservation Monitoring Centre.

Recommendation: To facilitate such archives, ISIS is encouraged to proceed as rapidly as possible with CD ROM technology.

CBSG Regional Meetings

The value of Regional CBSG Meetings as recommended by the Committee last year was reaffirmed and the increasing number of such meetings acknowledged. Such meetings permit more persons to participate as well as contacts to be more frequent. Conducting such meetings in conjunction with the annual conferences of the regional breeding programs and or zoo associations is proving very effective. It is recognized that there is a need to provide help to the region to serve as host. Over the next year, the focus of Regional CBSG Meetings will be on continuing the Global Action Plan process to permit more participation.

Also there will be attempts at the Regional Meetings to encourage formation of TAGs. There will also be an attempt to combine actual working meetings during these sessions, such as Global Action Plan Workshops, Global Masterplan meetings, or PVA's. There is also the suggestion that perhaps the Antelope Action Plan Workshop occur in conjunction with Pan African Zoo Association Meeting in Harare in June.

Recommendation: Encourage continuation and expansion of Regional CBSG Meetings and, where possible, encourage that major working sessions occur at these times.

Global Action Plans and Taxon Advisory Groups

Recommendation: The basic scheme of relationships among Regional and Global Action Plans as well as Regional Taxon Advisory Groups and CBSG Global Action Plan Groups is endorsed as reflecting the current state of development of these processes.

Recommendation: All regions are encouraged to continue or initiate development of Taxon Advisory Groups. In doing so, they are encouraged to consider how other regions have organized their TAG's as well as how the SSC Specialist Groups are constituted.

Recommendation: Regions are encouraged to use the CBSG Global Action Plans and their Regional Collection Plans as guides in selecting taxa over the long term. Over the shorter term, regions are encouraged to review the lists of existing programs in other regions to consider if their region should also organize programs for these taxa so that their programs can be more in concordance in captive propagation programs globally.

Global Breeding Programs

Recommendation: The basic plan for global captive propagation programs is for each region to be an equal component. Each regional coordinator will serve on a Global Management Committee. This Global Management Committee should nominate one of its own to serve as the global coordinator. The term of this person should be for three years. It would be desirable for this responsibility to rotate. Appointment of the Regional Coordinators are the responsibility and prerogative of the regions. Members of committees can appoint representatives to substitute for them at meetings. All Global Management Committees should have representatives of management authorities of countries of origin as advisers.

Recommendation: The role of the Global Management Committees is to coordinate and integrate interactions among the regional programs. A primary objective is formulation of a Global Masterplan that delineates a recommended distribution of responsibilities among regions (e.g. target population sizes) and what the interactions among these regional populations for this taxon might be. The International Management Committees can recommend policy and provide scientific advice.

Recommendation: In Global Programs, the Regional Programs retain their sovereignty. However, the regions are encouraged to try to resolve any conflicts of interest that might develop through collegiality within the Global Management Committee. Global Management Committees are further encouraged to accord biological objectives of the taxon the highest priority when trying to resolve such conflicts. When conflicts cannot be so resolved, the CBSG Regional Conservation Coordinator's Committee will be available to review the problem and to provide advice.

Recommendation: An animal is completely under the management of the regional program in which it is physically located albeit in the context of the global program.

Recommendation: Any activities *ex situ* or *in situ* in a



Regional Captive Propagation Programs Worldwide

Region	Designated and Pending Taxa						Number Taxa in Common with						
	Mammals	Birds	Herps	Fish	Invert	Total	ASMP	EEP	JMSG	SSP	SSCJ	Unique	
ASMP	38	11	3	0	0		52	52	14	10	19	5	20
EEP	62	12	2	0	0		76	14	76	22	51	13	28
JMSG	25	9	0	0	8		42	10	22	42	40	12	3
SSP	52	13	6	28	10		109	19	40	22	109	19	54
SSCJ	23	10	1	1	0		35	5	13	12	19	35	15
Total	105	40	12	29	14		200	Total Unique Taxa				119	
India has also initiated movement toward regional captive propagation programs by establishing studbooks for 44 mammal, 15 bird, and several herp taxa.									2 Regions		49		
									3 Regions		17		
									4 Regions		12		
									5 Regions		3		

Taxa with Programs in Multiple Regions

Three Regions	Four Regions	Five Regions
Palm Cockatoo Bali Mynah/Starling Doria's Tree Kangaroo Goodfellow's Tree Kangaroo Matschie's Tree Kangaroo Grizzled Grey Tree Kangaroo Black & White Ruffed Lemur Red Ruffed Lemur Clotton-top Tamarin Concolor/Black/White Cheeked Gibbon Maned Wolf Clouded Leopard Snow Leopard Asian Elephant Asian Tapir Grevy's Zebra Indian/Nepali Rhino	Red Crowned Crane White Naped Crane Lion-tailed Macaque Chimpanzee Lowland Gorilla Siberian Tiger Sumatran Tiger Cheetah Przewalski's Horse White Rhino Scimitar-horned Oryx Addax	Orangutan Red Panda Black Rhino Lion Tamrins

region by zoos outside that region should be in consultation and coordination of the Regional Coordinator in that region.

Recommendation: The CBSG Regional Conservation Coordinators Committee will review applications to form global program to provide advice and endorsement. Applications for such review and endorsement must include: 1) evidence that an International Studbook exists or is being developed; 2) the taxon must be represented in at least two of the organized regions recognized by the CBSG; 3) identification of a global management committee consisting of the Regional Coordinators; 4) a genetic and demographic assessment of the population on both a regional and global basis; and 5) any recommendations from the Global Captive Action Plan concerning the priority of this taxon for captive programs.

Recommendation: There should be an attempt over the next year to move ahead with global programs and masterplans for selected taxa. Each of these efforts should involve an initial masterplanning/organizational workshop. Candidates proposed are orangutan (it would be desirable for this workshop to be conducted in Southeast Asia and to be coordinated with a PVA Workshop for this species as has been proposed and invited by the Indonesian government), lion-tailed macaque, tiger, black rhino, maned wolf, addax, scimitar-horned oryx, red-crowned crane, white-naped crane, and Bali mynah/starling.

Fauna Interest Groups

Recommendation: Encourage continued development of Fauna Interest Groups at global and regional levels.

Recommendation: Global Faunal Interest Groups should include the chairs of any similar FIGs organized at regional levels. The global FIGs should also involve the Conservation Coordinators of the region of the area of interest of the FIG.

Training of Studbook Keepers and Species Coordinators

The various training activities in progress in North America (AAZPA Conservation Academy, Small Population Management Advisory Group Workshops), Europe (EEP Training Workshops), and Australia are commended.

Recommendation: Regions should exchange training and course materials as much as possible.

Recommendation: Regions are encouraged to consider participation of representatives of other regions in their training workshops. Further, governing authorities of the regional programs are encouraged to consider financial support for such exchanges.

Recommendation: The attempt should be resumed to develop a standard reference manual for studbook keepers and species coordinators using the existing EEP manual and the plan for a joint EEP/AAZPA Manual as a guide but involving participation from the entire Conservation Coordinator's Committee. The outline of the plan for the EEP/AAZPA Manual will be circulated to all members of the Committee.

This report was submitted by Tom Foose, CBSG Exec. Officer

1991 Annual Report



AAZPA Conservation Program

Considerable progress has been made toward improving and expanding the role of the AAZPA Conservation and Science Office in the last year. Of particular significance has been the reorganization, revitalization and expansion of the Species Survival Plan (SSP) and related AAZPA conservation and scientific programs into a holistic Conservation Program. This report highlights some of the significant events that occurred during 1990-91.

Conservation and Science Long-range Plan

A long-range plan was prepared for the AAZPA Conservation and Science Office, including projected work loads and personnel needs through 1995. Much of the Plan was based on the results of a survey distributed to SSP coordinators in 1990. The Plan, which reflects the needs identified in the survey, has since been incorporated into the AAZPA's Long-Range Strategic Plan. Wildlife conservation was recognized as the Association's highest priority in 1980. Thus, our long-term priorities include:

- 1) a reorganization and expansion of the Species Survival Plan and related AAZPA conservation efforts;
- 2) the integration of the North American SSP with other regional breeding programs (e.g., EEP, ASMP, etc.) through the IUCN Captive Breeding Specialist Group (CBSG);
- 3) the organization and expansion of science in support of the SSP, including greater collaboration with the academic community;
- 4) the development and facilitation of stronger linkages between zoos, aquariums and field conservationists;
- 5) improved training opportunities and support for current and future studbook keepers, SSP coordinators and taxon advisory group chairs; and
- 6) resolution of some of the ethical issues that could affect the long-term success of our cooperative breeding programs.

Taxon Advisory Groups

The Taxon Advisory Group (TAG) concept is gaining wide acceptance within the Association, although its ultimate niche is still being defined. The primary responsibility of TAGs is regional strategic collection planning, including the identification of priorities for new studbooks and SSPs. However, ethical issues, research priorities and housing standards will also be addressed, especially when they affect an entire taxon.

Chairpersons have now been identified for a total of 42 advisory groups. Thirty of these (71.4%) have petitioned AAZPA's Wildlife Conservation and Management Committee

(WCMC) for approval and 25 of these (83.3%) have been approved as of 1 September 1991. Five petitions are pending or under revision.

A set of specific responsibilities has been developed for TAGs, including some draft protocols for the development and implementation of Regional Collection Plans. These are being shared with the CBSG Conservation Coordinator's Committee for possible adoption by other international breeding programs.

Species Survival Plans

Nine new SSP species were designated in 1990-1991: white-checked, white-handed and siamang gibbons (managed under a Gibbon SSP/TAG); Virgin Island boa; Asian, mountain, lowland and Baird's tapirs (managed under a Tapir SSP/TAG); and African elephant (managed along with the Asian elephant under an Elephant SSP). This brings the total number of species covered to 62. Petitions for African Wild Dog and Tree Kangaroo SSPs were recently submitted for WCMC consideration. We are expecting an avalanche of SSP petitions once the TAGs have completed their preliminary planning processes.

Fauna Interest Groups

Three new Fauna Interest Groups (FIGs) were formed during the last year. These include Brazil, Indonesia/Malaysia and Zaire. The FIGs serve as a communication and support network for AAZPA members and institutions who are working *in situ* or *ex situ* in a particular geographical region. We are in the process of defining the role of regional FIGs. However, one function will be to provide regional representation on Global FIGs organized under the auspices of the IUCN CBSG and to create a link between North American zoos and international field conservation efforts.

Conservation Academy

Training of current and future studbook keepers, species coordinators, and taxon advisory group chairs was identified as a major priority by the AAZPA Conservation and Science Office and WCMC. In an effort to address this issue, the AAZPA Conservation Academy conducted its first course at the St. Louis Zoological Park in February 1991. Focused on studbook management, the week-long course attracted a full complement of 20 students. Student evaluations were excellent, and the program is being expanded to include a course on SSP coordination in 1992. A Resource Guide is also being prepared which describes concisely the responsibilities of studbook keepers, species coordinators and taxon advisory group chairs.

Small Population Management Advisory Groups

The AAZPA Small Population Management Advisory Group (SPMAG) conducted its first training workshop in Front Royal, VA from 1-6 April 1991. The workshop was a success, and the instructors, Dr. Robert Wiese, AAZPA; Dr. Tom Foose, IUCN CBSG; Jonathan Ballou, National Zoological Park; and Dr. Robert Lacy, Chicago Zoological Park, deserve credit for

their commitment to this important program. Participating institutions paid for their representatives to attend. The SPMAG now has 20 members, including 17 regular members and three technical advisors.

All regular SPMAG members have the ability to serve as consultants to SSP coordinators and propagation groups on masterplanning issues. AAZPA Conservation Biologist, Dr. Robert Wiese, is coordinating the group so that travel monies are used more efficiently. An SPMAG newsletter is being produced and distributed by the Conservation and Science Office. Its purpose is to keep SPMAG members and interested parties informed of the latest software developments and projects.

During 1990-91, the SPMAG completed a total of 10 masterplans; three additional sessions are scheduled before the end of the year. In addition, group members assisted in the transfer of nine studbook databases into the standardized SPARKS format.

A grant proposal was submitted to the AAZPA Conservation Endowment Fund to provide support for a second training workshop and to offset the travel expenses of volunteer members of the SPMAG to masterplanning sessions during the 1992 fiscal year. The \$15,000 grant was awarded at the 4-6 August Board of Directors Meeting near Colorado Springs, CO.

Reintroduction Advisory Group

An AAZPA Reintroduction Advisory Group is being formed under the chairmanship of Dr. Ben Beck, National Zoological Park. Membership is open to all individuals who have direct experience in any aspect of the reintroduction process. The group will serve in an advisory capacity to the AAZPA Board of Directors, WCMC, and the AAZPA Director of Conservation and Science in all matters related to reintroduction efforts.

Research Coordinator's Committee

An AAZPA Research Coordinator's Committee (RCC) has been formed under the auspices of the Zoo Biology and Research arm of the WCMC. The role of the Committee will be to begin to organize and promote AAZPA scientific efforts in support of conservation. An election for committee chair was conducted by the Conservation and Science Office. Dr. Steven Thompson, Lincoln Park Zoological Gardens, was elected from a list of three candidates. The RCC is open to all individuals who have primary responsibility for administering or coordinating their institution's scientific programs.

Ethical Issues and the SSP

AAZPA Director of Conservation and Science, Dr. Michael Hutchins, collaborated with Dr. Bryan Norton, Georgia Tech University and Dr. Terry Maple, Zoo Atlanta and Georgia Tech University to submit a National Science Foundation (Ethics and Values Studies Unit) grant proposal to support a working conference on ethical issues facing the SSP. The conference would bring together some of the leading experts in the fields of conservation, zoos, environmental ethics, and animal welfare to

discuss the changing roles of zoos and the ethical problems that confront them. Two products would result: a book containing a variety of essays on related topics and a set of recommendations to the AAZPA Board of Directors. The proposal has made it through all preliminary reviews and formal notification is expected in October.

Annual Conference Planning

A total of 81 conservation-related meetings were scheduled at the 1991 AAZPA Annual Conference in San Diego. In 1990, the species coordinators voted to have the SSP/TAG/FIG meetings run concurrently with other conference events. For the first time in AAZPA history, these meetings ran from Saturday to Thursday—a total of six consecutive days.

AAZPA/IUCN CBSG Memorandum of Understanding

A Memorandum of Understanding (MOU) between CBSG and AAZPA was approved by the AAZPA Board of Directors and signed by AAZPA President, Dave Zucconi, AAZPA Executive Director, Robert Wagner, and IUCN CBSG Chairman, Dr. Ulysses Seal in November 1990. The MOU outlines the working relationship that will exist between AAZPA and CBSG, including various ties and lines of communication. Further discussions concerning the AAZPA/CBSG relationship subsequently occurred at the Rhino Strategy Meeting at the New York Zoological Park from 20-21 June 1991. An article describing these deliberations appeared in the CBSG NEWS (volume 2 (3), 1991) and in the AAZPA Communique (September, 1991).

AAZPA Conservation Endowment Fund

The Conservation and Science Office developed and distributed detailed guidelines for the AAZPA Conservation Endowment Fund (CEF) application process during 1990-91. A total of 22 complete applications were accepted for consideration during the first 1992 funding cycle, representing nearly \$385,000 in requests.

Proposals were circulated to the CEF Review Committee and selected independent reviewers for comments and recommendations. Final decisions were made by the AAZPA Board at their Annual Meeting, 4-6 August near Colorado Springs, CO. A total of \$105,000 were awarded in support of nine different projects; an additional \$102,400 were disbursed through the AAZPA Ralston Purina Big Cat Survival Fund to support projects on felid conservation, including a \$80,000 grant to support research into the application of modern reproductive technology to the conservation of wild and captive felids and a \$10,000 grant to support a PVA/Conservation Action Plan Workshop for the Sumatran tiger in Indonesia.

Annual Report on Conservation and Science

The Conservation and Science Office completed editing and production of the first AAZPA Annual Report on Conservation and Science. The volume contains standardized progress reports from all approved Taxon Advisory Groups, Species

Survival Plans, and Faunal Interest Groups. Also included is a listing of conservation related projects supported by AAZPA member institutions and a bibliography of scientific and conservation-related publications written by zoo personnel and their collaborators.

We are currently in the process of formulating our goals for 1992. It should be noted that much of our time has been spent on building an organizational structure for our programs. Now that a solid framework is in place, however, we believe that meaningful and rapid progress can be made.

This report was submitted by Michael Hutchins, Director of Conservation and Science

Report from the Pan African Association of Zoological Gardens, Aquaria, and Botanical Gardens



The Pan African Association of Zoological Gardens Aquaria and Botanical Gardens (PAAZAB) held its second annual conference in June 1991. Since its inception, membership has grown to include more than 30 institutions from seven different countries, the most recent being from the Cameroon. Various other countries such as Mozambique, the Congo, Namibia, Togo, and Morocco have also shown an interest in becoming members. The next annual conference will probably take place in Zimbabwe and in Zaire thereafter.

The implementation of an individual membership category will allow for greater involvement and the opportunity for staff members to participate actively, especially during scientific sessions. PAAZAB represents members from all over Africa and probably covers one of the largest geographical areas of all regional associations. Members are from different cultures and language groups which adds to the complexity of the problems.

The most important factor is the lack of funds. Few, if any, members, outside South Africa are in a position to pay their annual fees or even the cost of attending meetings. Since the inception of PAAZAB, the Department of Foreign Affairs in South Africa generously sponsored the transport costs and membership fees of various institutions. The National Zoological Gardens of South Africa has also helped alleviate the financial burden by funding transport costs.

Several overseas institutions have shown an interest in the development of PAAZAB and offered their assistance to ensure positive growth. This support is greatly appreciated. May I take the liberty to suggest that members of the IUDZG, or even

regional associations such as AAZPA, ECASA, ARAZPA and others, adopt one or more zoos in Africa and sponsor their membership or attendance of meetings. The entry fee amounts to approximately \$360 (US) and thereafter an annual fee of approximately \$175 (US).

The most important decisions taken by Council at the recent conference were the approval of a Code of Ethics and the establishing of an African Preservation Programme. The Code of Ethics consists of eight pertinent issues which deal with: trade in animals and plants; the subscription to agreements regarding the acquisition, transport, import, export and relocation of animals and plants; the moral responsibility to maintain the highest possible standards for animal husbandry and veterinary care for animals; the moral obligation not to undermine any other member in public; the sharing of knowledge and expertise; and the application of the highest standard of ethics.

The newly-established African Preservation Programme is chaired by Viv Wilson, Director of the Chipingali Wildlife Orphanage in Zimbabwe. A committee has been appointed which will consolidate the breeding programmes of threatened species.

PAAZAB's participation in ISIS, the use of transponders for animal identification, and relationships with other associations were among the other issues discussed during the Oudtshoorn meeting.

With the overwhelming interest by various institutions in Africa in PAAZAB and hopefully with financial assistance, it is my considered opinion that PAAZAB will go from strength to strength.

This report was submitted by Willie Labuschagne, Chairman, PAAZAB

Regional Coordinator Report for India



Legislation

A National Zoo Act was passed in India by Parliament on 16 September 1991 as part of the Wildlife Amendments Bill. The Act provides a mechanism for setting up a Central Zoo Authority of India which will specify standards for zoos, evaluate zoos with respect to standards, recognise or derecognise zoos, set up and coordinate captive breeding programmes, identify priorities and themes for display of animals, coordinate studbook maintenance, training and research activities, and provide technical assistance to zoos for proper management and functioning.

A National Zoo Policy was drafted last year which provides guidelines for implementation of the Zoo Act which will be submitted to the Authority for adoption. The Policy includes means for improving species conservation, international cooperation, and other aspects of zoo management.

Indian Zoo Directors' Association

The Indian Zoo Directors' Association has been registered officially under the government of Orissa State and will hold their first meeting at the time of the sixth All-Indian Zoo Directors' Conference which is to be held in Hyderabad. Projects for the Association will be planned and officers elected at this meeting.

Zoo Consultancy Project

The Zoo Consultancy Project, which is being conducted via the Wildlife Institute of India and funded by the Ministry of Environment and Forests, government of India, has now listed a total of 208 wild animal facilities in 28 categories in India. Nearly 50 of these have submitted complete history and information including stock position. These facilities and any others that come to light will be assessed by an accreditation committee under the Zoo Authority. The Consultancy Project at the Wildlife Institute has also been given responsibility for conducting training courses for zoo personnel.

Training

A two-week course in zoo management for in-service zoo personnel at the director's level was held in November, 1990 by the Wildlife Institute of India which included zoo personnel as well as staff of protected areas.

A ten-day Conservation Education course was held in early September at the Wildlife Institute of India, which included zoo personnel as well as staff of protected areas.

A six-week course in Zoo Management for in-service zoo personnel at the curatorial or supervisory level is being conducted in November-December of this year. The course will cover theoretical aspects at the Institute located at Dehra Dun and practical aspects in a two-week, work study tour covering four major North Indian zoological parks.

The first regional language zoo maintenance handbook has been brought out in Tamil and distributed to zookeepers and supervisory level personnel in Madras Zoo. The book will be made available to other zoos in the state and also to countries such as where Tamil-speaking zookeepers are in service.

Conferences and Symposia

The Sixth Meeting of All-India Zoo Directors was held at Hyderabad Zoo, 23-25 October, 1991.

A workshop/symposium entitled Perspectives in Zoo Management was hosted by the National Zoological Park and the Ministry of Environment 29-31 October 1991.

An International Seminar on Veterinary Medicine in Wild and Captive Animals, sponsored by the Indian Veterinary Association was held in Bangalore, India from 8-12 November 1991. Special sessions devoted to zoo veterinary medicine were scheduled.

The Chamarajendra Zoological Gardens, Mysore, has extended an invitation to the Captive Breeding Specialist Group to hold a regional meeting in connection with their 100th birthday.

A Progress Report on the Conservation Activities of the Zoo Community in Brazil

The Brazilian Zoo Society

The Brazilian Zoo Society (SZB) has been in existence for more than a decade. It started in 1979 when it promoted its first Congress with the participation of seven Brazilian zoos at the city of Sorocaba, Sao Paulo, where its headquarters is located. In recent years, the association has changed dramatically from its original seven zoos to more than seventy affiliated zoos.

Together with IBAMA Instituto Brasileiro de Recursos Naturais (Brazilian Environment and Natural Resources Institute), the SZB has developed a new national zoo policy law. This zoo policy law was approved three years ago and included the provision for the creation of a coordination body that operates autonomously but in close relation with IBAMA. The SZB has established minimum standards for zoos, and a commission of its members is now in charge of the coordination of many zoo activities including the conduct of accreditation examination to insure the minimum standards of quality. Also as result of this law, a biologist and a veterinarian are now the minimum technical staff required for a zoo in Brazil. A new generation of zoo personnel is emerging and the Society is little by little orienting the captive-breeding world in Brazil toward conservation and education.

Training is another important aspect. Training is the key for a major change in the captive breeding conservation goals in Brazil. This is the area that the International Zoo Community can play a major role in helping countries like Brazil to get involved in the international captive breeding conservation effort. This could be very clearly demonstrated by the following experiences that have significantly contributed to conservation changes in Brazilian Zoos:

- The Smithsonian Institution Training Programs through its Front Royal Research and Training Center or the National Zoo Projects in Brazil.
- The Jersey Wildlife Preservation Trust training program has been one of the major sources of broadening the scope of zoo technicians and professionals who deal with captive breeding in Brazil.
- The Program for Studies In Tropical Conservation-University of Florida. This program has been an outstanding opportunity for students who focus their research in tropical studies.

Results

Among the recent conservation activities of the Brazilian Zoo Society we would like to emphasize the following that we consider of utmost importance.

- General Census: Since 1989, the BZS has conducted a computerized census of all mammals, birds, and reptiles for all affiliated captive breeding facilities in Brazil.

- Studbooks and Propagation Plans: The Society organized two regional propagation plans: for the maned wolf (*Chrysocyon brachiurus*) and for the Brazilian Cayman (*Caiman latirostris*).

From the 13 International studbooks that deal with Brazilian species, four are run by Brazilians. One of the Society's main goals is to increase the participation of Brazilians in the elaboration of similar projects, even if there is the need to train professionals for this task.

- PVA (Lion Tamarins): Only one PVA has been developed so far with Brazilian endangered species. Last year, a PVA on Lion Tamarins was organized in conjunction by Fundacao Biodiversitas of Brazil and CBSG. The SZB plans to develop at least one PVA per year for the next three years, after which the number of PVAs will increase until there is one for each endangered species in the country.



Conclusion

All the changes mentioned above are evidence of the new approach that the SZB is instilling in the captive breeding centers in Brazil. It seems to be an appropriate time to discuss the participation of the international zoo community in conservation on a cooperative basis. In fact, many cooperative works are now underway as in the case of the U.S. and global Faunal Interest Groups with AAZPA and CBSG, respectively. Brazilians are now members and/or chairpersons of several international committees for the conservation of some endangered species.

In summary, the SZB has accomplished a great deal in the last three years. However, we are aware that there is a long way to go. The difference is that we now believe we can do it. If we have the support of the international zoo community, we believe we can give a significant contribution to the CBSG efforts for a global captive breeding conservation program.

This report was submitted by Claudio Valladares Padua, IPE Instituto Pro-Ecologia (representing SZB)

Training Workshops Conducted by the Association of Mesoamerican Zoos

The Association of Mesoamerican Zoos (AMAZOO) has conducted five workshops for zoo professionals. The first of the five courses on zoo management for zoo directors and administrators was held in Guatemala City in July 1990. It was funded by Wildlife Preservation Trust International (WPTI), the Zoo Conservation Outreach Group (COG), and the 1990 participants of the AAZPA Management School who contributed \$2,418 which was raised during that year's silent auction.

This course was taught by instructors from the schools managed by the Guatemalan Association of Managers, who followed a course outline similar to AAZPA Management School's curriculum. Fourteen individuals from nine zoos in seven countries participated and learned about the role of zoos in conservation, marketing, fund-raising, and personnel management.

The second course, instructed by expert Latin American educators for zoo educators, was held in September 1990, and was funded by WPTI, World Wildlife Fund, and the U.S. Fish and Wildlife Service (USFWS). Sandra Skrei attended as an observer and special consultant. Twenty-eight people participated in the course, from 12 zoos in eight countries. The working agenda included topics such as the importance of

creativity and imagination in the learning process, art in the zoo, how to develop educational programs at the zoo, signage, and teacher training.

The third course, held in February 1991, was titled Zoo Biology and Captive Breeding Management Training for Zoo Veterinarians and Curators. It was supported by the U.S. Agency for International Development's Regional Office for Central American Programs (USAID-ROCAP) using the monies spent during the first two courses as matching funds. This course was modeled after the Smithsonian's Zoo Biology and Training Course for tropical zoos.

Topics included animal collection plans, records, identification methods, management of individuals and social groups, exhibit design, diets, and hand-rearing. It also included workshops, wet labs, and *in situ* practicals to reinforce theories presented in class. One highlight of this course was the presentation of 11 animal identification kits contributed by AAZK via the Audubon Park Zoo chapter. These kits, valued at over \$600 each, were a special project of AAZK's 1990 national conference. The tags, tattoo machines, and bird bands helped the zoos begin their animal record-keeping systems.

The fourth class for keepers was held last June, and supported by USAID-ROCAP and the USFWS. Thirty-two people participated from 14 different institutions. This course was similar to the course for curators and veterinarians, but on a more basic level.

Three major organizations, WPTI, USAID-ROCAP, and COG, made these workshops, and resulting achievements possible through funding and a commitment to the programs. To date, AMAZOO has trained 105 people from 17 different institutions and eight countries.

The necessity of these courses and the interest and desire to improve the level of professional zoo management in Central America is obvious, as is the enormous potential U.S. zoos have to help support the conservation efforts that Central American zoos are striving to accomplish.

To continue progress, AMAZOO has many things planned during the next several years. If funds permit next year, AMAZOO plans to offer a course for zoo veterinarians in Costa Rica, write a zoo exhibit design manual for native species, and continue to work with COG to encourage U.S. zoos to establish

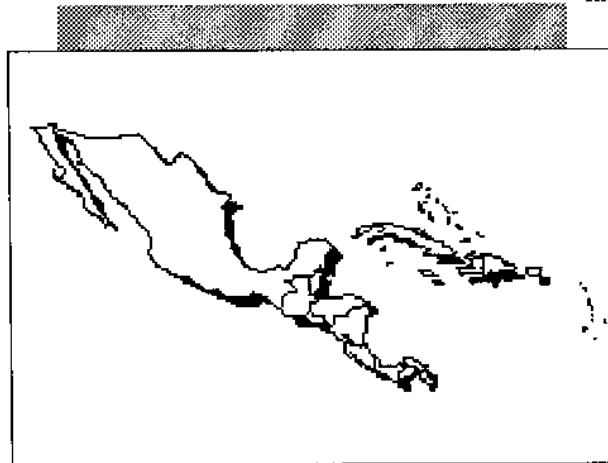
sister zoo relationships with Central American zoos.

At the most basic level, sister zoos support and supplement AMAZOO's training by offering staff exchanges, and help to increase local interest in the zoo. Sister zoos can also help facilitate fund-raising and institutional improvements, and staff exchanged come away with a renewed appreciation for their home facilities.

Three years ago, Central American zoos operated like islands with no exchange of advice and information between colleagues or exchange of animals. With the formation of AMAZOO and especially for zoos fortunate enough to have sister zoos, work is no longer done in isolation and jobs are much less frustrating and more rewarding.

AMAZOO's ultimate goal is to continue offering training programs in Central America which are fortified with at least one or more "Partner Zoos" that will support growth efforts. Extensive sister zoo relationships promise to be the best means of improving Mesoamerican zoos.

The more North American zoos support Mesoamerican zoos, the sooner these zoos can reach their 4 million annual visitors with more effective conservation messages that will serve to help wildlife worldwide.



The Australasian Species Management Program



Although the Australasian Species Management Program (ASMP) has been progressing for many years, a new generation of support for conservation within zoos in Australia and New Zealand has resulted in some fundamental restructuring which is already bearing fruit. The ASMP mission statement is *"To contribute to conservation regionally and internationally by assisting in the preservation of biodiversity and the prevention of species extinctions through the co-operative management of wildlife in the Australasian region."*

Co-operation is certainly the key to the success of the ASMP. Compared with other regions, Australasia has few major zoos, widely scattered and with limited holding capacity. Australasia also has quarantine restrictions on the importation of certain taxa, high cost of freight on imports from overseas, and restricted availability of many species which are rare both in captivity and in the wild. However, the continuing goodwill and collaboration between zoos in the region has been a major force towards establishing adequate population sizes and maintaining genetic quality. The membership of the ASMP includes the major public and private zoos from each state in Australia and from New Zealand, and the ASMP hopes soon to formalize participation by some wildlife agencies. The ASMP is actively developing close ties with wildlife authorities throughout the region so that captive breeding programs can be integrated at an early stage into wildlife recovery programs.

Administration

The ASMP is now administered by the zoo professions through the Species Management Coordinating Council (SMCC). The SMCC is comprised of equal representation by the Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA) and the Council of Governing Bodies of Australian Zoos (COGBAZ). These two organizations have replaced the Association of Zoo Directors of Australia and New Zealand (AZDANZ). Participating institutions each sign an annual contract with the SMCC which outlines the responsibilities of both parties and which specifies the subscription fee.

Organization

The essential work of regional planning is carried out by Taxon Advisory Groups (TAGs) which co-ordinate an ongoing review of the species within their taxon. This process involves close consultation with Species Coordinators, with wildlife authorities, and with the broader conservation community. Recognizing the need to broaden its taxonomic scope and to intensify attention to some groups of animals, the ASMP has recently expanded the TAGs to include artiodactyls, perissodactyls (including elephants and hyraxes), New Zealand birds, passerines,

pigeons and parrots, aquatic birds (including seabirds, waders and shorebirds, park birds (including ratites, storks, flamingos, cranes, etc.), ground birds (including game birds, quails, rails, etc), raptors, marsupials and monotremes, Australian placental mammals, primates, carnivores (including marine mammals), reptiles, amphibians, fish, invertebrates, and other taxonomic groups.

The TAGs carry out their review process with the assistance of two major tools: 1) a set of regional prioritization criteria which guide the selection of species and which consider parameters including biogeographical significance for Australasia, conservation status, available resources, adaptability to captive husbandry, potential for successful re-introduction, and articulation with other regional or international action plans, and 2) a Regional Census and Plan which is a crucial management instrument documenting in detail the Australasian collection while at the same time outlining proposed changes.

Stocks in the collection are further classified into four categories according to their requirement for genetic management on a regional basis, with the highest priority being accorded to species for which captive breeding programs contribute animals for release to the wild. Species Coordinators are appointed to co-ordinate the management of high priority species. It is their role to gather and analyze data on their species (using ISIS-developed software) and to prepare the recommendations which form the basis of an SMP (Species Management Plan).

Progress and Projects

As a result of the many and productive TAG workshops held in the region over the last 12 months, there is a shift towards species of high conservation priority, and a gradual rationalization which is likely to see a decrease in the number of species held so that group sizes can be increased to support an adequate gene pool.

Some of the specific tasks now in progress include the development of a training program for Species Coordinators, further evolution of the Regional Census and Plan, the development of Key Performance Indicators for the ASMP, and the development of regional action plans for taxonomic groups as well as individual species. In New Zealand, new legislation (Exhibited Animals Welfare Code) recognizes ARAZPA as the regional industry's representative body, and the ASMP as the mechanism through which the distribution of managed species is regulated.

The ASMP address is PO Box 44, Mt. Helena 6555, Western Australia, Tel: (09) 574 7273; Fax: (09) 574 7278.

Report on Recent Developments in the EEP



On the first of January 1991, the National Foundation for Research in Zoological Gardens (Amsterdam, The Netherlands) took on its duties as "EEP Executive Office". Four of the collaborators of this Foundation - Bert de Boer, Frank Princee, Koen Brouwer, and Simone Smits - are involved in EEP activities on a part time basis. The work of the EEP Executive Office, which falls under the responsibility of the EEP Coordination Committee, includes coordination of breeding programme activities, organization of meetings, training of species coordinators, development of software tools, and promotion of the EEP.

The 8th EEP Conference was held in Budapest on May 1991. It was attended by 75 delegates representing 17 European countries. Proposals were submitted for four new EEP programmes (Asian elephant, great Indian hornbill, palm cockatoo, and the rat kangaroos of the genus *Bettongia*). Acceptance of these proposals brings the total number of EEP taxa to over 70. During the meeting, the first steps were taken to initiate Taxon Advisory Groups for bears, equids, hornbills, cracids, and ciconiid birds. The TAG system will be extended in the very near future. In conjunction with the Budapest Conference, nine species committee meetings were held as well as a number of other committee meetings. The proceedings of the Conference together with the 1990 annual reports of the species coordinators will be published and distributed early November, 1991.

The EEP Executive Office is developing a training programme for species coordinators. A first course will be organized in November 1991.

Frank Princee worked with ISIS for four months in 1991. He explored possibilities to combine the strong points of the SPARKS software with those of the ZSM software in order to develop a new "third generation" population management software package in the near future. The results of this exploration were promising, and it is hoped that major progress can be made in 1992.

Next year's EEP Conference will be hosted by Edinburgh Zoo on 6-8 July 1992. This conference will see a further development of TAGs and a further increase of activities of the various categories of committees. For the first time, a regional European CBSG meeting will be organized in conjunction with the Edinburgh EEP Conference. This will certainly lead to the involvement in EEP activities of an increased number of experts, as well as to an increased involvement of EEP actions with those of other regions and global developments.

Currently, some 250 European institutions participate in one or more of the 70-plus EEP programmes. Twenty countries with 15 different languages are involved. Obviously, this results in considerable communication problems. The EEP also suffers

from the absence of a formalized European zoo organization. Recent initiatives were taken to form a pan-European Zoo Association (EAZA). The ECAZA (European Community Association of Zoos and Aquaria) prepared a draft constitution for such an all-European association, which was amended and supplemented by the EEP Coordination Committee. Hopefully, EAZA will be established in 1992, which will then serve as the organizational framework for the EEP.

Species Survival Committee JAZGA (SSCJ)



The Japanese Association of Zoological Gardens Aquariums (JAZGA) organized the Species Survival Committee JAZGA (SSCJ) in March, 1988. At that time, there were two international studbook keepers and 30 national studbook keepers. In October, 1988, the First Conference of SSCJ was held at Tokyo and appointed each studbook keeper to the Regional Propagative Group leader of the species. Organization of the propagation group for each species was also begun. Nate Flesness of ISIS attended this meeting as well.

In July, 1989, the second conference of SSCJ was held at Tokyo. At that conference, the Asian white stork (*Ciconia c. boyciana*), the Japanese giant salamander (*Andrias japonicus*) and the Asian arowana (*Scleropages formosus*) as propagative species were added.

The third conference of SSCJ was held at Nagoya in October, 1990. Dr. Ulysses Seal, Chairman of CBSG attended to the Conference and provided useful advice. At that conference, national studbooks for seven more species were added. These regional propagative species are: wattled crane, Japanese golden eagle, Waldrapp ibis, salmon-crested cocatoo, black lemur, ruffed lemur, and drill. In addition to these, we added ten species of rare Japanese freshwater fish for species survival programmes. There are now 43 propagation groups under the SSCJ program, but there are many problems to promote these programs.

In 1989, we succeeded in moving three black rhinoceros between three zoos in Japan under the coordination of the SSCJ. In 1989 and 1990, we succeeded in breeding the Asian white stork (*Ciconia c. boyciana*) in sufficient numbers to allow reintroduction.

In 1991, we received five lion-tailed macaques from the U.S. with the cooperation of the AAZPA Propagation Group, the international studbook keeper for this species, Dr. Gledhill of Woodland Park Zoo, and the JAZGA Propagation Group for the species.

We held the fourth Conference of SSCJ at Kobe on 7-8 October 1991. At the Conference we added some animals for

propagative species, such as the Humboldts' penguin and the giant anteater. A regional coordinator in Japan was also appointed to correspond with each international studbook keeper, and to organize a network to assist the work of CBSG. Dr. Tom Foose, CBSG, attended the conference on his way home from the CBSG annual conference.

This report was submitted by Atsushi Komori, Secretary General, J.A.Z.G.A.

Southeast Asian Zoo's Association



In 1980, the United Nations Conference on Conservation and Development (U.N.C.E.D.) launched the World's Conservation Strategy. During that decade, national and international bodies were attempting to arrest the decline of biological diversity through a variety of initiatives. But the picture at the end of the 80's showed a rapid loss of biological resources through deforestation, forest fires, over-harvesting of plants and animals from the wild, indiscriminate use of pesticides, pollution of the air, and waterbodies.

Conserving the world's biological diversity is the most challenging issue of this decade of the 90's. The General Assembly of the United Nations in Resolution 44/228 has called for the convening in 1992 of a conference on "Environment and Development" at Rio de Janeiro, Brazil. Governments and NGO's are scheduling international conferences and negotiations paving the way to a successful global conference in June next year.

The 45th UN General Assembly through Resolution 44/207 will call for measures to protect the global climate and the UN Conference on global warming held at Geneva called for member governments to take action to reduce the "greenhouse effect". The international treaty will be ready for signing by mid-1992.

The current decade may be the last chance for the world community to formulate the strategy to save life on earth. Biological resources provide the basis for life on earth, including that of humans.

Introducing Southeast Asia

Comprising one dozen countries astride the equator, this tropical region inherits a major proportion of the planet's biological diversity endowed by the Creator. Southeast Asia (SEA) has the longest coastline (circa 200,000 km) and the biggest number of islands (circa 40,000) clustered together in several archipelagoes with a wide span covering three different biogeographical realms, the Indo-Malay Oriental Zone, the Australasian Zone, and the Transition Zone also called the Wallacea, the bridge between the Asian and Australian Conti-

nents (Oceania). It has the largest coverage of mangrove-tropical rain forests and wetlands.

The RAMSAR Convention ranks SEA as the important transit area for migratory birds, such as the milky stork. The largely unstudied marine fauna with its extensive reef areas is among the earth's most diverse. The thousands of freshwater bodies are homes of a huge number of vertebrates and invertebrates.

SEA is a major contributor to wildlife collections worldwide. Conservation International labels SEA as a Mega-Diversity Region. The executive summary jointly issued by the World Bank, WRI, IUCN, and WWF stated in 1990, "The exploitation of the tropics by the industrialized societies has yielded great benefits without making commensurate investments in conservation and without paying the environmental costs of over-exploitation.

The combined destructive impacts of a poor majority struggling to stay alive and an affluent resource-consuming minority are inexorably and rapidly destroying the buffer that has always existed between human resource consumption and the planet's productive capacity.

In the late 20th century we are coming to realize that biological resources have limits and that we are exceeding those limits."

The Establishment of SEAZA

Basic Philosophy

Being conscious of the existence of wildlife in the natural order of the world as a common interest of humankind endowed by the Creator;

Being also conscious that every biological species has a right to survival and that humankind as the dominant species in the natural hierarchy has a duty to protect this right and that zoos in developing countries are the key to educating those who are ultimately going to be affected by the decline of biological diversity;

Being desirous to enhance our responsibility to this duty by keeping wild animals in captivity in settings that approximate as closely as possible to their natural habitats, which can and should promote the conservation of biological diversity :

- for their exhibition to the general public for purposes of recreation and education ;
- for research especially into their characteristics and behaviour ;
- for their reproduction in captivity; and
- as a last stronghold for species that have become endangered in their natural habitats and which are vulnerable to extinction without the positive intervention of man;

Desirous to promote and develop our common aims in a spirit of friendship and mutual co-operation within Southeast Asia, and seek cooperation with zoos outside the Southeast Asia in the furtherance of the protection and survival of wild animal species for the benefit of humankind;

Guided by the resolutions of the first SEA Zoos' Confer-

ence in Kuala Lumpur, Malaysia, July 1988, the Second Conference in Singapore, October 1989, the Front Royal International Zoo's Workshop USA, April 1990, and the Third Conference in Bogor, Indonesia, October 1990, the Fourth Conference will start next week in Chiang Mai, Thailand;

The Third conference in Bogor, attended by participants and guests from Germany, Hong Kong, Malaysia, the Philippines, Singapore, Thailand, USA, Vietnam, and Indonesia as host, resolved to establish the **South East Asian Zoo's Association**.

"Zoos" shall be defined as inclusive of Safari Parks, aquariums, bird parks, butterfly parks, insectariums, herbariums and other collections of wildlife for breeding and/or exhibition to the public.

In the near future, we will invite these other countries in our region to join the Association: Brunei Darussalam, Burma (Myanmar), Kampuchea, and Laos. The Association would then include around 100 zoos, big and small.

Existing zoos in Southeast Asia range in size from 5-50 ha. Some are owned by local governments or municipalities, others are managed by a foundation or zoological society, and some others are completely private enterprises. Some have developed a modern management and sophistication in their exhibits, while others still inherit the old menagerie style.

Objectives

The objectives of SEAZA are :

- to establish a closer interaction amongst personnel of Southeast Asian zoos ;
- to develop co-operation and foster better understanding amongst members of the SEAZA ;
- to exchange information and to coordinate activities of common interests ;
- to promote inter-zoo cooperation towards advancement of zoological parks of Southeast Asia.
- to improve the standard and status of zoological parks of Southeast Asia.
- to encourage development of educational and research programmes with a view to improve conservation consciousness and manage captive breeding programmes in support of fauna conservation ; and
- to promote regional tourism.

Activities

In pursuance of the aforementioned objectives, the SEAZA shall initiate and/or undertake the following activities :

- organize conferences/seminars/workshops to exchange information and discuss matters of common interests ;
- plan animal exchange programmes ;
- conduct inter-zoo training;
- undertake conservation activities through breeding programmes on the bases of regional studbooks ; and
- exchange published information, i.e. newsletters, annual reports, surplus lists and others.

Structure

The structure of the SEAZA shall be :

- a. the General Assembly ;
- b. the Executive Board.

General Assembly

The General Assembly shall compose of the delegations of all members of the SEAZA and shall convene at intervals of not more than three years.

If a national zoological association exists in a member country, the association shall have one vote. In the absence of any such national association, the organizations in the particular member country should undertake to agree on one representative who shall vote on their behalf.

At least three months' notice shall be given in writing before the meeting of the next General Assembly together with an agenda.

A quorum for a General Assembly shall be a simple majority of the existing members.

Minutes of the meeting of the General Assembly shall be drawn up by the Secretary, approved by the President, and circulated to all members within five weeks after the closing of the meeting for information. They will be confirmed, subject to any necessary amendments at the next meeting.

Executive Board

The affairs of SEAZA shall be managed by the Executive Board.

The Executive Board shall consist of elected members, nominated from members of each country, equally.

The members of the Executive Board shall be elected at a meeting of the General Assembly. The nomination should be accompanied by the written support of two members of different organizations together with the written consent of the candidate.

The officers of the Executive Board shall be: a President, a Vice President, two members and a Secretary. The officers will be from at least three different countries and elected by the members of the Executive Board. The Vice President will be elected as the next President.

The Executive Board shall meet annually or whenever deemed necessary.

A quorum for any meeting shall be three.

The present Executive Board members are: D. Ashari (Indonesia), Mohammed Khan bin Momin Khan (Malaysia), Bernard Harrison (Singapore), Chira Meckvichai (Thailand), and Effendy Sumardja (Indonesia).

Membership

Membership shall be open to all zoo-organizations of Southeast Asia subject to the approval of the General Assembly.

Membership may be applied for by a zoological society, a municipality, a public or private company, an institution or individual which owns or manages a collection or collections of wild animals for purposes of exhibition to the public.

Conclusion

We still have a long way to go. But we are confident. With dedication and hard work and last but not least, with your cooperation and assistance, we hope SEAZA will be an organization we can count on, cementing a solid sense of belonging among its members and becoming a valuable link between national and international zoos' Associations. We welcome your comments and suggestions and hope many of you will be joining us in Chiang Mai.

This report was submitted by D. Ashari, President, SEAZA.

Comments on Zoo Conservation and Animal Welfare

I would like to comment briefly on the presentation given earlier on the activities of zoos and their relationship to animal welfare. I think that everyone here would agree that we should be concerned about the welfare of individual animals. But, the critics of modern zoos and captive breeding programs need to become more aware of the severity of the problems facing conservationists today. Indeed, we could stand to lose between one and five million species of animals and plants within the next two decades, primarily due to habitat destruction fueled by growing human populations. Animal welfare and rights groups have been critical of zoos' efforts to breed animals in captivity; they have also been critical of the recent efforts of zoos to shift their collections from common to threatened or endangered species.

However, one must ask what is the alternative? Should we not implement captive breeding programs for endangered animals? Should we continue to use our limited resources to care for more common animals and let hundreds, perhaps even thousands of species go extinct? If it were not for captive breeding programs, the world certainly would not have Asian wild horses, black-footed ferrets, Arabian oryx, or California condors. Many other species are likely to face extinction if we do not take action soon.

It is true that many of the decisions we must make will be difficult and perhaps even painful. It is equally important that zoo professionals continually question their own motives and methods to make sure that they are compatible with global species conservation efforts.

On the other hand, I refuse to be ashamed of the directions and actions that professionally-managed zoological institutions are taking. As stewards of wildlife, we must have the courage to make difficult decisions, including the practice of species triage. Critics must also remember that the contributions of progressive zoos go well beyond captive breeding. In the United States and

Canada, more people visit zoological institutions each year than attend professional football, baseball, and basketball games combined. There is great potential to educate and pass on a conservation message. Without this opportunity, urban-dwellers are likely to become even more remote from wildlife and natural ecosystems.

Research conducted at zoos is directly relevant to field conservation efforts. In fact, many national parks are essentially becoming fragmented islands of habitat. In order to preserve the wildlife contained therein, it will be necessary to manage animal populations and their habitats intensively, much in the way that we do in zoos.

It is clear that zoos must be concerned about animal welfare issues. However, a short-sighted emphasis on individual animals could prove disastrous for long-term conservation efforts. There are clearly going to be conflicts between what is good for individual animals and what is good for a population, species, or ecosystem. However, whenever I become confused about what is the highest moral imperative, I am reminded of a quote by conservationist Michael Soule who said: "An end to life is one thing, an end to birth is something else!"

This report was submitted by Michael Hutchins, Ph.D.; Director of Conservation and Science, American Association of Zoological Parks and Aquariums.

The Conservation Role of Zoos: Budgets and Priorities

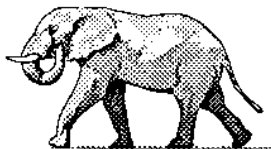
Zoos are generally formed for purposes of recreation, education, conservation, and research. Their actual accomplishments in these areas are determined by their priorities and governing mandates, and their priority activities are carried out through their budgetary decisions. It is also understood that few zoos have much flexibility in allocation of funds. In this context, we present a preliminary concept.

The combined budgets of the zoos in the hard currency countries exceed \$1,000,000,000 (U.S.). Suppose that zoos could commit 1% of their budget to collective, off-site conservation activities; activities beyond those needed to simply sustain zoo operations and collections. One percent of \$1 billion is \$10 million which might be allocated half to joint internal conservation programs of the zoo community and half to *ex-situ* programs, as follows:

<u>Suggested%</u>	<u>Application</u>
0.15%	\$1.5 million for national, regional, and international zoo association support. These organizations carry out development and coordination of breeding programs, training, etc.

<u>Suggested%</u>	<u>Application</u>
0.1%	CBSG support at the level of \$1 million/yr. This would triple CBSG contributions to joint programs.
0.1%	ISIS support at the level of \$1 million/yr. This would double ISIS's ability to deliver badly-needed information services and tools.
0.05%	Entrepreneurial funds for new initiatives such as genome banks for wild animal species, compact disk libraries, etc.
0.1%	North/South support for developing country zoos (Adopt-A-Zoo) at \$1 million/yr. Many of these zoos are in the megadiversity countries and improving their public impact would really benefit conservation aims. This is 50 zoos at \$20,000/yr.
0.25%	For small, direct, and well-thought out Adopt-A-Park programs, coordinated with IUCN's CNPPA and complementary to programs such as Nature Conservancy's Parks in Peril campaign. These should be developed over time, taking advantage of the enormous direct contacts, languages, and in-country experience that the zoological community has within its own staff. As this grew to 0.25%, 100 parks could be adopted at an annual level of \$25,000/yr.
0.25%	For support of Conservation Action Plans of priority projects by the approximately 75 SSC animal taxon Specialist Groups, to include single species programs, status survey work, sustainable use, and projects in conjunction wherever possible with counterpart efforts in zoos coordinated through CBSG.

We recognize that some zoos are already committing much more than 1% of their operating budgets to conservation activities as described above, but there is no summary available of overall effort. Perhaps a third of the \$10 million posited above is now being spent on the identified areas. An international zoo conservation secretariat might provide some economies in the first area in addition to focussing cooperative efforts to best conservation effect.



Meetings...

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.

1992 EEP Annual 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.

Management for Biological Diversity Workshop, 13-17 July 1992, Fort Collins, Colorado, USA. Contact: Dr. Richard L. Knight, Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins, CO 80523, USA. Tel: 303-491-6714.

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.

XIVth Congress of the International Primatological Society, 16-21 August 1992, Strasbourg, France. Contact: N. Herrenschmidt, Centre de Primatologie - ULP, 7, rue de l'Universite, F-67000 Strasbourg, France. Tel: 88-56-12-68; Fax: 88-56-02-30.

Association of Avian Veterinarians Annual Conference, 30 August - 5 September, 1992, New Orleans, USA. Contact: AAV Conference Office, 1625 S. Birch St., Suite 106, Denver, CO 80222, USA. Tel: 303-756-8380; Fax: 303-759-8861.

International Conference on Molluscan Conservation, 10-12 September 1992, Glasgow, Scotland. Contact: Fred Woodward, Kelvingrove Museum & Art Gallery, Kelvingrove, Glasgow G3 8AG, Great Britain. Tel: (041) 357 3929; Fax: (041) 357 4537. **Note: this date has been corrected from the one that appeared in CBSG News, Vol. 2, No. 3.**

AAZPA/CAZPA Annual Conference, 13-17 September 1992, Toronto, Canada. Contact: Joel Peters or Sandi Burden, Metropolitan Toronto Zoo, Box 280, West Hill, Ontario, Canada M1E 4R5. Tel: 416-392-5911/5910.

Reptile CAMP, 1-3 September 1992, Vancouver, CANADA. Contact: CBSG Office.

Annual CBSG Meeting, 4-6 September 1992, Vancouver, CANADA. Contact: CBSG Office.

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.

January

3 - 5 Palm Desert: Antelope CA
 7 - 9 MN: Kirkland's Warbler PVA
 10 - 11 Apple Valley: CBSG/IUDZG/GCCN
 13 - 18 Cambridge: Parrots CBAP
 20 - 21 Cambridge: Kyoto Criteria & Elephants & Mace/Lande

February

5 - 7 Aruba: Aruba Island Rattlesnake PVA
 6 - 8 Ventura: Sea Otter Recovery Team Mtg
 10 - 16 Caracas: Parks Congress - Workshop
 Primates CBAP Review & Primate PVA

March

18 - 19 Front Royal: Cheetah Husbandry Manual
 20 - 22 Front Royal: Felid TAG
 23 - 24 Front Royal: Tiger SSP
 26 Illinois: Univ/Urbana Lecture

April

5 - 10 Australia: ARAZPA, CBSG Regional, Marsupial GAP
 New Zealand: Plant PHVA
 21 - 23 Ohio: Karner Blue Butterfly PHVA
 24 - 28 Houston: Bird Curators
 27 - 30 Morocco: Rabat Zoo - Waldrapp Ibis PHVA

May

4 - 6 Jersey: 6th International Cong. Breeding End. Sp. Captivity
 7 Jersey: CBSG mtg
 9 - 10 London: Rhino CA
 15 - 17 Fossil Rim: Global Canid CAMP

June

12 - 14 Phoenix: Conservation Biology
 21 - 29 Zimbabwe: Pan African Zoos

July

5 - 8 Edinburgh: EEP/CBSG Regional Mtg
 9 - 10 Edinburgh: Global Tiger Mtg.

August

9 - 15 Calgary: Cranes CBAP and PVA Workshop

August

18 - 22 New Zealand: Penguin PHVA and CAMP Workshop
 24 - 29 Melbourne: International Penguin Conference

September

1 - 3 Vancouver: Reptile CAMP (Quinn, McLain)
 4 - 6 Vancouver: CBSG Meeting
 7 - 10 Vancouver: IUDZG Meeting
 10 - 12 Glasgow: International Molluscan Conference
 13 - 17 Toronto: AAZPA

October

1 - 3 Cincinnati: Reproductive Technology Workshop
 1 - 5 Pan Africa Ornithology Congress
 17 - 25 Japan: Japan SSCJ and Training Workshop (CBSG)
 30 - 3 Ohio: Conservation Genetics & Evolutionary Ecology Mtg

November

11 - 13 Oakland: AAZPA/AAZV/CBSG Disease Workshop
 14 Oakland: Am. Assoc. Zoo, Veterinarians

Position Announcement... **Wildlife Biologist - Saudi Arabia**

The National Wildlife Research Center is seeking a person with extensive field experience in large mammals with skills in survey methodology. A survey of gazelle species is planned for April, May, and June, 1992. Persons interested in this three-month position should send their curriculum vitae as well as their list of publications to:

Dr. Arnaud Greth
 National Wildlife Research Center
 P.O. Box 1086
 Taif, Kingdom of Saudi Arabia

Tel: 966-2-745-51-92
 Fax: 966-2-745-51-76 (fax preferred)

Could we please have a moment of your time to discuss another issue?

The *CBSG News* is currently distributed to a network of over 5,000 CBSG members and conservation professionals in 158 countries. In order to keep up with the increasing expenses associated with the printing and distribution of the *CBSG News*, we are asking for contributions from readers in countries having hard currency who feel that they can afford to help us defray these costs. If you would like to assist the CBSG with these expenses, please take a moment to fill out the coupon below.

Suggested contribution is \$25 (U.S.).



Name _____

Institution _____

Address _____

Country _____

- Yes! I am enclosing _____ for the CBSG to help defray publication and distribution costs of the *CBSG News*.
- I cannot contribute at this time, but I would like to continue receiving the *CBSG News*.
- I no longer wish to receive the *CBSG News*.

Return to: CBSG News
12101 Johnny Cake Ridge Road
Apple Valley, Minnesota 55124 USA

CBSG News



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



CBSG News
12101 Johnny Cake Ridge Road
Apple Valley, MN 55124 USA

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 _____

Name: _____

Position: _____

Institution Name: _____

Address: _____

Country _____

Telephone: (office) _____ Telefax: _____

My areas of interest and specialization are: _____

Are you interested in participating in the CBSG? Yes _____ No _____

Would you be interested in becoming a national correspondent for the CBSG News? Yes _____

Are you interested in continuing to receive the CBSG News? Yes _____ No _____

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

CBSG News
12101 Johnny Cake Ridge Road
Apple Valley, MN 55124 USA



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.

Please send us any project summaries or reports describing such activities.

YOUR NAME: _____

ADDRESS: _____

CITY: _____ COUNTRY _____ POSTAL CODE _____ TELEPHONE: _____

PROGRAM NAME/AREA SUPPORTED: _____

SUPPORTING INSTITUTION: _____

INSTITUTION ADDRESS: _____

OTHER INFORMATION: _____

PLEASE COMPLETE AND RETURN TO: CBSG, 12101 Johnny Cake Ridge Road, Apple Valley, MN 55124 USA

ISIS NEWS



Newsletter of the International Species Information System

Vol. 2, No.1, 1992

ISIS News Teams Up With CBSG News

ISIS News is appearing for the first time as an insert in the CBSG Newsletter. ISIS has intermittently produced its own newsletter in the past, but is now trying this alternative method of communication. Following is an introduction to ISIS to those unfamiliar with this organization.

ISIS is an independent, non-profit, international information network of member institutions. Members presently include 401 institutions on six continents. They comprise nearly half of the world's recognized zoological institutions. Members join the network so that they can manage their own collection in the context of the rest of the *ex-situ* population, and to have access to software tools developed for use by the community of member institutions.

ISIS, therefore, has two major functions: (1) providing a pooled specimen database (now including 150,000 living captive specimens of over 4,000 species plus 850,000 of their ancestors) and (2) acting as a developer of micro-computer software tools for in-house population management by ISIS members.

ISIS began operations in 1974, and has been expanding in services and membership since that time. The ISIS network has *doubled* in size and coverage in the last five years. The value of the pooled data offered by ISIS depends directly on the comprehensiveness of the network, so a very important objective is to expand ISIS to include all possible member institutions. Beyond access to pooled data, ISIS offers members three different personal computer (PC) software tools for collection/population management. Known as ARKS, MedARKS, and SPARKS, these systems have been adopted by over 300 institutions in 24 countries around the world. ISIS is funded by member institution's fees (about 60% of the budget), zoo association grants (5%), and outside grants (35%). Institutions wishing information are encouraged to contact ISIS. Those without access to hard currency are nonetheless encouraged to contact ISIS as arrangements may be possible.

Current ISIS Services

- Currently, ISIS offers the following services
- Specimen Records Systems (ARKS PC software, MedARKS PC software, Paper Forms)
 - Population Management Systems (SPARKS PC software)
 - Pooled Inventory - ISIS Abstracts and SDR microfiche Reports
 - "Studbook-of-Last-Resort" - available for any taxon on disk in SPARKS format or on paper
 - Pooled Physiological Norms for 700 species.

ISIS Central Database and Services

ISIS' central database is the resource used to produce pooled inventory reports such as ISIS' Abstracts and SDR microfiche, extract studbooks-of-last resort, and generate Physiological Norms. An unusually heavy flow of data has been received following the ISIS 1991 member fee change and the mid-summer distribution of SENDISIS, a computer program which ARKS-using members can utilize to send all data not previously shared to ISIS. Institutions are expanding the portion of their current collection registered with ISIS, and also are contributing historical information not previously sent to ISIS. We do not yet have a measure of this data flow except that it has caused our mainframe hard disk drives to overflow(!), necessitating some restructuring of the ISIS file locations. This is of course good news as this information will benefit all members in the future.

ISIS 3

ISIS is presently rebuilding its central database to modernize and update its functions and services. The new system, "ISIS 3", will operate on a high-powered PC, use the FOXPRO 2 DBMS, and be a true "studbook" system. For the first time, the information ISIS has on about one million specimens, living and dead, will be stored "linked together" into specimen histories. This system is similar to a zoological studbook, but less complete since ISIS data is



only as comprehensive as ISIS' membership. ISIS' new system will be able to provide much more powerful support for strategic planning, cooperative management programs (such as SSP, EEP, ASMP, etc.), and assistance to those starting or maintaining a studbook. Presently ISIS 3 developer, Paul Scobie, is testing "load runs" of 20,000-animal transactions as well as studying both performance issues and ways to improve ISIS' ability to link together the various parts of a specimen's history received from different institutions.

ARKS At A Glance

The Animal Records Keeping System (ARKS) software distributed by ISIS, Inc. is a management tool for single institutions with captive animal populations. Since its inception, ARKS has become the world standard for computerized zoological inventory records and is used by over 300 zoological gardens and related institutions.

ARKS produces a Collection Report, Taxon Report, Specimen Report, and an Enclosure Log to address a variety of collection information needs. ARKS records specimen "events" as transactions. These include births, acquisitions, loans to, loans returned from, and more. The Transaction Report produces lists by transaction and time frame. ARKS produces an Age Pyramid, Fecundity and Mortality Report, Reproductive History, and Sibling Table. ARKS will produce an "in collection" Pedigree Report and

Local Inbreeding Coefficients.

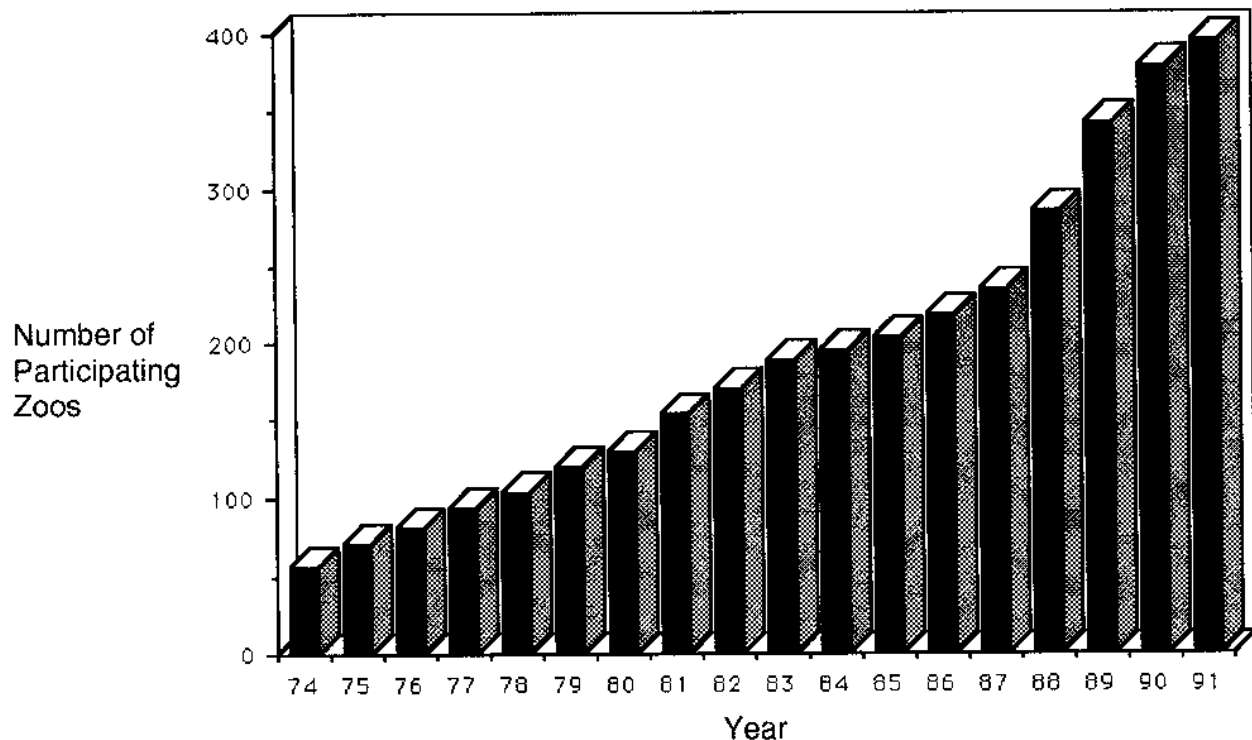
ISIS is currently distributing version 2.05 of ARKS which will run on most DOS-based PC's. A major upgrade - ARKS 3.00 - is being developed with enhanced text capabilities, transactions-based group record keeping, and greater power in the use of identifiers and weight/length information. ARKS 3.00 will make particularly good use of 386-based micro-computers with a mouse and will be network compatible.

ARKS provides a means of recording the complete history of a specimen from birth or acquisition as a series of transactions. ARKS has additional capabilities involving specimen comments, identifiers, weight, length, and enclosure.

MedARKS

Development of the Medical Animal Record Keeping System (MedARKS) was initiated in 1985 by the American Association of Zoo Veterinarians. Designed to integrate with the Animal Record Keeping System (ARKS), MedARKS is an in-house zoo medical record keeping system which provides a standardized approach to medical information storage, retrieval, and sharing. MedARKS is being developed in phases or "modules" as funding becomes available. MedARKS presently includes modules for anesthesia, parasitology, treatments and vaccinations, clinical pathology, medical history and inventory

Table 1. Growth of ISIS participating institutions, 1974-1991.



SPARKS

SPARKS is the Single Population Analysis and Records Keeping System software from ISIS. This software was created to assist in assembling, editing, analyzing, and producing reports on the status of captive populations held in multiple facilities. You can create and edit studbook data, produce many different kinds of "studbook" reports from your data, analyze your data with routines within SPARKS, and perform further analyses with routines provided by others. SPARKS runs on PC's and compatibles.

SPARKS is intended to give you considerable power to do what is typically necessary, as well as to provide the flexibility to handle unique circumstances. SPARKS emphasizes data quality-control plus ready analysis and comparison of different subsets of your data. Particularly important in SPARKS is the ability to "view" a subset of data. For example, SPARKS allows you to readily compare and demographically analyze age-specific fecundity for hand-reared versus parent-reared individuals (assuming you can assemble the rearing data) in a particular geographic area and/or managed population and/or time period of your choice.

Computer Hardware Requirements

For users of and potential users of ISIS software programs (ARKS, SPARKS, and MedARKS), you should

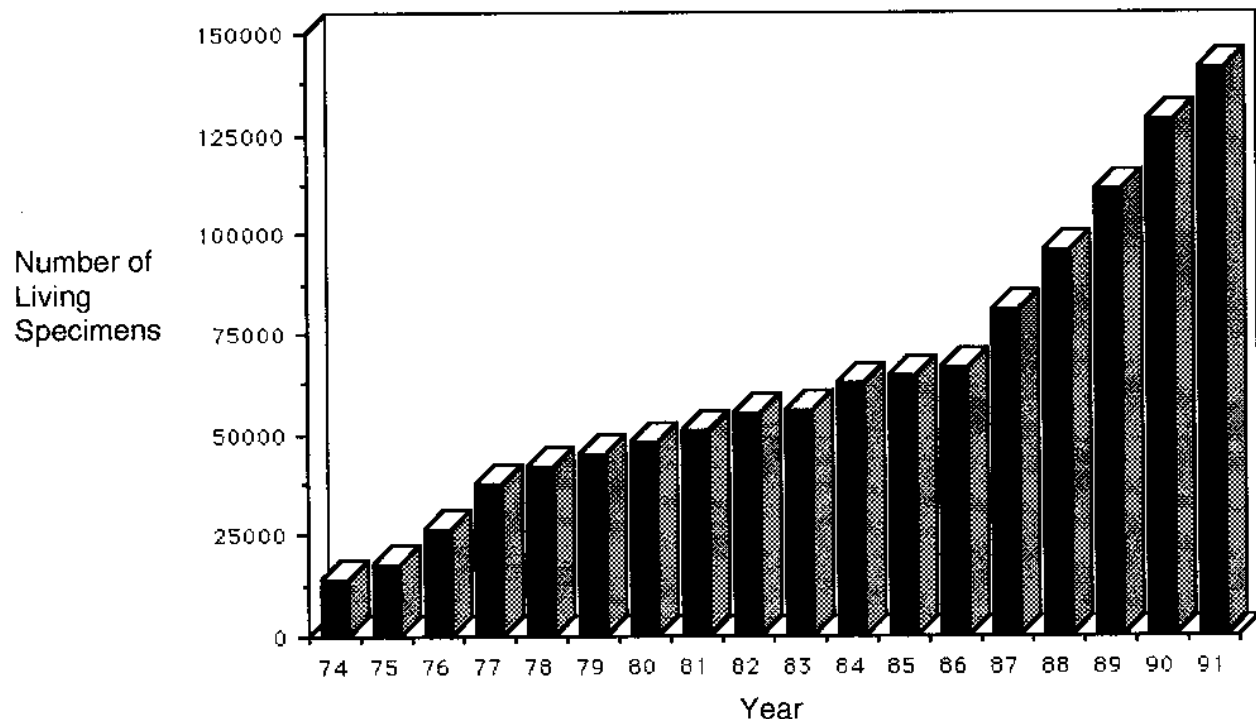
be aware of the necessary computer hardware to run these programs. They have been designed to run on IBM compatibles with an 8088, or higher, central processing unit (i.e., XT- or AT-class computers, or 386- or 486-CPU computers) with 640K of conventional RAM and a 40 MB (minimum) hard drive. However, ISIS programs are rather large and run *very* slowly on the XT-class computers. These programs will run much faster on a more powerful computer such as those having a 386 or 486 CPU.

For those users considering buying a new computer, ISIS suggests that you buy a 386 or 486 microprocessor with as much RAM as possible (2 MB or 4 MB recommended). A hard drive with a minimum of 40 MB is necessary - 100 MB to 200 MB are preferred. With the future release of ARKS 3, a color monitor and a mouse are also recommended. You should be able to find a quality system for less than \$2500 (U.S.).

Microsoft DOS 5.0

For users of ISIS software (and users of PC's in general), ISIS recommends that you upgrade your computer to MS-DOS 5.0. This version of the operating system has been enhanced tremendously and widely tested. Some of the new features include memory management capabilities, the ability to load DOS high, improved DOS SHELL with task swapper, and a smaller kernel. In other words, this means that it is faster, smaller (takes up less

Table 2. Growth of specimens registered with ISIS, 1974-1991.





RAM), more powerful, and should not cause you any problems. The documentation has also been improved and does a better job of explaining how to configure your computer system. The upgrade can be purchased in the United States and Canada for \$60 - \$70 (US).

ISIS Governance

ISIS is now governed by a Board of Trustees elected by the ISIS membership. The first election was held in November of 1991, and was certainly the widest election ever held in the zoological community with over 330 institutions on six continents able to vote. Sixteen candidates stood for election, with eleven elected.

The results of the election were that John Knowles (U.K), Ton Dorrestyn (Netherlands), Karen Sausman (U.S.), Gunther Nogge (Germany), Bernard Harrison (Singapore), Itaru Uchida (Japan), George Rabb (U.S.A.), Paul Garland (New Zealand), Don Farst (U.S.), Palmer Krantz (U.S.), and William Labuschagne (South Africa) were appointed to the ISIS Board of Trustees.

In addition, Ulysses Seal (U.S.), Kathryn Roberts (U.S.), Steven Wylie (U.S.) and Max Rembiszewski (Poland) serve by appointment (the Board may appoint up to five Trustees), and Nathan Flesness serves by virtue of office.

Figure 1. World map indicating participating ISIS institutions.



Curious about ISIS?



If you you would like to learn more about the International Species Information System, please fill out the below information:

Name: _____

Title/Position: _____

Institution Name: _____

Institution Address: _____

Telephone: _____

Telefax: _____

Please remove this page and mail to:

ISIS

**12101 Johnny Cake Ridge Road
Apple Valley, MN 55124 USA**

**(612) 431-9295
(612) 432-2757**

**Phone
FAX**