

# CBSG News

*Inside...*  
Reports  
from the  
1994  
CBSG  
Annual  
Meeting

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## Highlights of the 1994 CBSG Annual Meeting

The 1994 CBSG Annual Meeting held in September in Sao Paulo, Brazil, was our first annual meeting held in South America and it was of great significance to us. Our network in Central and South America is expanding dramatically, with workshops scheduled for Costa Rica, Brazil, Columbia, and Venezuela in 1995. I continue to be impressed with the vast numbers of young, enthusiastic conservationists so dedicated to preserving the unique and rich biodiversity of that region.

The 1994 Annual Meeting was preceded by a CAMP Workshop for South American Felids, hosted by Professor Dr. Saliba of the Sao Paulo Zoo. Forty-six participants from seven countries actively reviewed available data and discussed the status of both wild and captive felids in South America. Draft CAMP documents, which compiled estimates of the threatened status of the world's cats, were generated beginning in 1991 in cooperation with the American Zoo and Aquarium Associations Felid Taxon Advisory Group (TAG) and the Cat Specialist Group of the SSC/IUCN. Because the original CAMP workshop was held in North America, those results had a strong regional bias. Nonetheless, that workshop was an important first cut at the process of long-range, strategic planning. The data generated earlier will continue to be refined at regional CAMP review meetings, such as the Felid CAMP held in Sao Paulo. Resulting documents will continue to be produced in the local language (Spanish in this case) and in English. The participants in this South American Regional Felid CAMP provided a wealth of information making the meeting a great success and a wonderful prelude to the 1994 CBSG Annual Meeting.

Several working groups (Mesoamerican, Regional Collection Planning, Wild Cattle, and others) met during the CBSG Annual Meeting. This issue of CBSG News contains those working group reports and regional zoo association reports. An important working group established this year was the Sustainable Utilization Working Group. This group settled upon a working definition of the topic and undertook an initial evaluation of the issues and themes involved in Sustainable Utilization such as scale of use, market issues, ethical use, human population dynamics, and the role of conservation breeding institutions. This working group will continue its work at the 1995 Annual Meeting in Dublin.

Finally, to clarify the mission, we announced our new name at the Annual Meeting: Conservation Breeding Specialist Group. For some time, the old name, "Captive Breeding" Specialist Group, was felt to be misleading. It implied to some that CBSG's mission is to solve all conservation problems by placing animals in captivity while, in fact, our focus is on small population management and only in about half of our projects is the recommendation made for the establishment of captive populations. This new name, chosen by the CBSG Steering Committee, more accurately reflects the scope and mission of CBSG.



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

Ulie S. Seal, Chairman

**The work of the Conservation Breeding Specialist Group is made possible by  
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## CBSG News

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

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## CBSG Mission Statement

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

The goals of the CBSG are to:

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



## Brazilian Zoological Society

This Society was founded in 1977 at Sorocaba Zoo with the purpose of uniting the Brazilian zoos, their employees, and other interested people to encourage the exchange of information, distribution of new techniques, and increased research, mainly concerning Brazilian fauna. The Society is comprised of 55 Brazilian zoos and about 200 members. There are four membership categories:

1. Institution: Zoos which contribute an annual fee of US\$100.00;
2. Zoo Employees: who have voting rights in assemblies and who contribute an annual fee of US\$10.00;
3. Collaborating Member: individuals not employed by zoos but who are interested in taking part in the Society, with no right of voting, contributing an annual fee of US\$8.00;
4. Honorary Member: honor conferred to someone who has recognized capacity and experience in the field of zoos, or those who have contributed with materials or donations.

### Organization

The Society is organized by a council and six departments. The present council is:

President: Aduino Luis Veloso Nunes, Sorocaba Zoo  
 Vice President: Willian Pires, Goiania Zoo  
 Secretary: Fabio Costa, Guarulhos Zoo  
 Vice Secretary: Ronaldo Morato, National Park of Iguassu  
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The departments are Reptiles, Birds, Mammals, Environmental Education, Veterinary, and Conservation. Each department is coordinated by a specialist in their field chosen by the Directive Council, with the attribution of helping members solving any doubts about those groups of animals, and also preparing the edition of the annual captive animal report. Elections for the whole council are made every two years.

### Activities

Annual congresses are promoted during the month of May, hosted by one of the member zoos. This year, the congress took place at Rio de Janeiro, focusing on the role of the zoos in the next century and aspects of reproduction in captivity. During the meeting five short courses took place: Environmental Education; Global Zoo Planning; Avicultural Techniques for Reproduction; Reptile Pathology; and Reproductive Biology of Cervids with special guests Dr. Ramiro Isaza (University of Florida) and Dr. Steven Monfort (National Zoological Park).

Last year, we promoted our first international meeting with attendance of more than 280 people, with the presence of Dr. Devra Kleiman (Smithsonian Institute), Dr. Wolf Bartmann (Dortmund Zoo), Dr. Bert de Boer (National Foundation for

Research in Zoological Gardens), Dr. Jacques Prescott (Quebec Zoo), Dr. Charles Coe (CLRR Landscaping), Dr. Alonso Aguirre (Wildlife Pharmaceuticals), and Lorena Calvo (JWPT and Regional Coordinator for Central America).

An annual nationwide inventory of reptiles, birds, and mammals in captivity is organized and published by the Society. Computers have been used for five years to compile data about the status of all species kept at Brazilian zoos through reports containing total numbers, natality, and mortality. The graphic presentation of our report was made similar to ISIS's report in order to make it comprehensible to the rest of the world. This year, we are registering more than 35,000 animals in 86 zoos, the best record ever reached. Furthermore, all these data are stored in the Andre Toselo Foundation, responsible for an "on line" consulting system (ON LINE" Zoo Data Bank), giving access to researchers worldwide.

Meetings, symposia, workshops, and training courses (regional or national) are promoted by the Society, alone or together with some other institutions, with the Society giving technical aid, as far as possible, financial support.

The Brazilian Zoological Society (BZS) has participated in the Elaboration of Laws that will organize the existing zoos and the creation of new ones through definitions of rules for minimal standards for adequate maintenance of animals in captivity. Each zoo registration is analyzed by a commission formed with two BZS representatives, two members of non-government organizations, and two members of the Official Environmental Agency, IBAMA.

The Brazilian Zoological Society has been trying to estimate the *ex situ* conservation of the Brazilian threatened fauna through management plans. There are well-established committees and regional studbook keepers for the maned wolf, ocelot, broad-nosed caiman, bush dog, golden conure, hyacinth macaw, and pacaarana.

We are in permanent contact with universities and research centers, developing cooperative work with captive fauna to make easier the access of taking samples and other sources of material. We stimulate this kind of partnership in order to increase the amount of knowledge specially related to Brazilian fauna.

### Difficulties

The Brazilian Zoological Society has many difficulties, most of them as a result of a chronic lack of financial support due mainly to our small incoming fees. More substantial technical and financial resources are needed for the promotion of more training courses, publication of periodicals, employment of permanent staff for bureaucratic work, and acquisition of equipment for members' use (books, equipment for sexing, tags, tattooing devices). Due to the serious economic situation of our country, investment in zoos is not considered a high priority. Besides this, some zoos are not able, or have no competence, to improve their general conditions by their own means.

Since almost all zoos belong to municipalities, there is a lot of political interference in the board of directors and technical staff, which sometimes frequently changes together with the

renewing of the government every four years. Believe it or not, there are some city administrators which do not feel that employing biologists and veterinarians is really necessary for zoo work.

Environmental education is still not seen as a duty and it is not taken into serious account by many zoos. There is a huge surplus of animals still coming from the wild (mainly by donations and traffic) which results in serious accommodation problems, waste of funds, and a potential to spread disease among the original collection. Despite these difficulties, rough times have increased the creativity potential of many Brazilian zoos and fortunately there are some very good examples of this.

*This report was submitted by Aduino Nunes, Sorocaba Zoo.*

## Report of the Mesoamerican Zoo Association

The Mesoamerican Zoo Association, founded in 1989 during the first Mesoamerican Zoo Symposia, is made up of 22 regional zoos. Until 1993, its main work was training of keepers, curators, veterinarians, educators, and zoo directors. Since June 1993, three main goals were established by the Directors:

1. Establish the legal base of the Association. This is almost completed.
2. Conduct a survey of the animals in the collections. This is in progress.
3. Fund environmental education programs.

Two other goals were later proposed:

1. Conduct a workshop to teach zoo biologists, zoo educators, and field biologists how they can run projects cooperatively. This project has been organized with the assistance of Cheryl Asa of the St. Louis Zoo.

2. Eugenia Martínez, the zoo educator of Guadalajara Zoo, Mexico, is organizing a workshop on zoo education, scheduled for the last week of January, 1995. She also is forming a library of zoo education materials from U.S. and Latin American zoos.

A Conservation Assessment and Management Plan (CAMP) on Costa Rican endemics and a PHVA on *Saimiri oerstedii* were held at Simón Bolívar Zoo, thanks to the support of the CBSG. A Fauna Interest Group (FIG) for Mesoamerica, coordinated by Cheryl Asa, was approved last June by the American Zoo and Aquarium Association (AZA).

The Latin American Zoo Association (ALZPA) was formed in 1989. Since then, the members from 18 different countries have held an annual meeting. Working commissions were established last year in Puebla, Mexico: education (which is organizing the Latin and Mesoamerican Zoo Educators Workshop), accreditation, ethics, conservation, bulletin, and legalities (a committee working towards legalization of the association).

*This report was submitted by Yolanda Matamoros, Simón Bolívar Zoo.*

## Mesoamerican/Latin American Working Group

This meeting discussed several items, mostly pertaining to information systems such as gathering data on the collections of the zoos in the region by developing a method to facilitate information gathering, identifying the Latin American zoos that are interested in ISIS, and identifying American zoos that could contribute financially to the annual ISIS dues of Latin American zoos.

Nate Flesness (ISIS) was invited to the meeting to discuss the possibilities. He explained the scope of ISIS' programs and he stressed that the ISIS fees should not prohibit the majority of zoos from joining ISIS. Related problems were also identified:

1. No existence of registrars;
2. Animals are not individually identified and marking tools are not available or accessible;
3. When staff leave, they may take their animal records with them.

Conclusions of the working group were:

1. It will be necessary to discuss the importance of registrars and their utilization at the next Latin American Zoo Association meeting.
2. The Fauna Interest Group (FIG) coordinators present at the meeting will determine the possibility of obtaining marking instruments from U.S. zoos as well as work toward developing training materials or workshops.

There was consensus for a compilation of Latin American wildlife laws. In addition, the importance of international meetings was discussed. Latin American people wish to participate in international meetings which could be facilitated by sponsorship of registration fees, making the meetings more accessible.

A PHVA facilitator's workshop is also needed and Dr. Seal (CBSG) has been invited to conduct such a workshop in Latin America, the first of which will be held in Brazil in February 1995.

*This report was submitted by Yolanda Matamoros, Simón Bolívar Zoo.*



## Paraguay Project



The Paraguay Project is an embryonic one; fertilization has occurred and a few cleavage stages have taken place. We are very excited about the degree of development and the enthusiasm that has been generated for the project. This optimism comes from preliminary surveys of interest and comments of colleagues.

The Paraguay Project developed with the receipt of an invitation in 1992 for the Sunset Zoo of Manhattan, Kansas to evaluate and advise the Asunción Zoo and to work with the architect developing a masterplan for its renovation. The administrative staff of Sunset Zoo strongly supported such assistance and as a result, a "sister zoo" relationship was formed between the two zoos. In March, 1994, as Director of Conservation and Research at Sunset Zoo, I was formally invited by the municipality of Asunción to spend one month as a consultant to the Dirección Medio Ambiente and the architects of the masterplan for development of the zoo portion of the Jardín Botánico y Zoológico. I also discussed conservation and animal management activities in Paraguay with individuals from the National University's Museum of Natural History, the College of Veterinary Medicine, representatives of governmental and non-governmental agencies, and other interested individuals.

Based on the results of that visit and other events, we were encouraged by Dr. Dennis Merrit, president of the AZA, Dr. Ulie Seal of the CBSG, and by the Conservation and Science Division of AZA to investigate the possibility of establishing a Fauna Interest Group (FIG) for Paraguay. The process moved rapidly owing to the desire to discuss the project at the CBSG meetings in Sao Paulo in August, 1994 and later in September with interested individuals at the AZA national meetings in Atlanta, Georgia. On May 25, 1994, a petition was submitted to the Wildlife Conservation and Management Committee of the AZA for permission to establish a Paraguay FIG. That petition was given tentative approval in early August pending the recruitment of additional participants from outside Paraguay, and agreements to participate from individuals within Paraguay. In accordance with that direction, a request was sent to over 46 individuals with known interest in animals found in Paraguay to participate with us in the FIG. To date, over 60% of those queried have responded favorably. A similar survey of individuals and groups in Paraguay is now also being conducted.

In order to determine conservation needs in Paraguay, a "working list" of its threatened species has been compiled from the 1993 IUCN Red Book of Threatened Species, from Señora Coleman of the staff of the Natural History Museum of Paraguay, and from data supplied by Chelle Plassé, Houston Zoo, chair of the Cracid TAG. This survey suggests there may be up to 69 threatened species in Paraguay: 32 mammals, 32 birds, and five reptiles. This is a tentative list which will require analysis, modification, and verification of its accuracy.

In the past, Paraguay has been considerably neglected by the

international conservation community and little is known outside its borders of the composition of its fauna. Because it shares boundaries with Bolivia, Brazil, and Argentina, Paraguay holds an important place in the integrated, overall wildlife management and conservation efforts in Latin America. Formation of a Paraguay FIG will complement and add to Latin American conservation activities and it will go a long way for the development and enhancement of Paraguayan conservation efforts. With that as a working premise, we look forward to satisfying and productive actions from the Paraguay FIG. The potential is great both within and outside the borders of Paraguay.

*This report was submitted by Robert D. Klemm, Sunset Zoological Park.*

## Report on the Costa Rican CAMP and PHVA

From 21 May through 2 June 1994, 20 persons from Costa Rica and the U.S. met at Simón Bolívar Zoo to conduct a CAMP workshop under the guidance of Dr. Ulysses Seal. One hundred and seven species of endemic butterflies, fish, amphibians, reptiles, birds, and mammals were evaluated. The current status of the species was determined to the best of the ability of the participants and each was assessed according to the draft IUCN Red List Criteria for Threat. In addition, information needed and management actions required for each species were determined.

Of the 107 taxa, four were considered Endangered, 13 Low Risk, and for 86 taxa there were Insufficient Data to carry out an assessment. Thirty-four species were recommended for PHVA workshops. Four hundred and seven recommendations for research management were made for the 107 taxa, and 15 were recommended for one of three levels of captive programs. Captive programs for 83 taxa were listed with a "?" because there was not enough information available to make such recommendations for these taxa.

Obviously, the first recommendations were to carry out research to determine Costa Rica's faunal resources. Specific recommendations were made for all groups. This was the first time that so many people have gathered to discuss Costa Rica's endemic species. When we receive the final report, we will send it to the authorities and other interested parties, thinking that this will help in decision-making about the future actions with these species.

A PHVA workshop was conducted on a squirrel monkey, *Saimiri oerstedii*. One of its subspecies, *S. o. citinellus*, is endemic to the central Pacific of Costa Rica. Because of fragmentation of the original habitat, 36 subpopulations are found in the area. The best known one lives in Manuel Antonio National Park, which is being studied by Grace Wong.

Twenty persons attended this PHVA workshop at Simón Bolívar Zoo, Costa Rica, from 3-5 June 1994. The CBSG was

asked to provide guidance in this procedure. The recommendations resulting from the workshop were:

1. Hold another formal workshop next year.
2. Develop a plan to protect the areas where subpopulations live.
3. Evaluate the possibility of doing translocations of subpopulations.
4. Develop an education campaign.
5. Study the captive breeding requirements for the species.

*This report was submitted by Yolanda Matamoros, Simón Bolívar Zoo.*

## The Brazilian Merganser (*Mergus octocetaceus*) - Nearly Extinct?

During a workshop at Slimbridge in 1991, the Conservation Breeding Specialist Group in connection with The Wildfowl & Wetlands Trust reviewed all waterfowl taxa on a taxon-by-taxon basis in terms of their status and prospects in the wild to assign priorities of intensive management and protection.

The participants applied the proposals by Mace and Lande (1991) for redefinition of the Red Data Categories to assess threats in terms of a likelihood of extinction within a specific period of time. The system defines three categories for threatened taxa which are based on population viability theory. Currently, 77 of the 234 taxa (33%) representing 60 of the total 154 species (39%) are assigned to one of three categories of threat, based on the above-mentioned criteria:

- Critical - 10 taxa
- Endangered - 24 taxa
- Vulnerable - 43 taxa

Critical means that there is a 50% probability of extinction within five years or two generations, which ever is longer. The Brazilian merganser is mentioned as undoubtedly one of world's critically-threatened waterfowl.

The Brazilian merganser is the only extant member of the tribe Mergini in the southern hemisphere and it has a disjunct distribution occurring in three small populations in south-central Brazil, southeast Argentina, and neighboring Paraguay. Recent surveys suggests that the latter population is approaching extinction (Collar et al., 1993; Benstead et al., 1993). The total population has been roughly estimated at around 250 ducks (Ellis et al., 1992) but this is certain to be an overestimate and not related to serious field surveys.

Historically, the Brazilian merganser has always been a scarce, rarely-seen bird. Indeed, it has been declared extinct in the past (Phillips, 1929). More fortunate than its only austral counterpart, the now extinct Auckland Island merganser (*Mergus australis*), the Brazilian species was rediscovered in 1947 in the Province of Misiones, Argentina (Giai, 1951).

The subsequent research of Partridge (1956), along with my observations later (Bartmann, 1988), are to date the only two studies which have collected field data on the Brazilian merganser. Perhaps the best known site for this species is Serra da Canastra National Park (S.d.C. NP) and the surrounding area in Minas Gerais Province, Brazil. Mergansers are regularly recorded here and they are the subject of my observations almost every year during different seasonal periods since 1981.

The S.d.C. NP is situated some 800 km northwest of Sao Paulo. It is a highland plateau, 900–1,400 m in elevation, characterized by rolling, rocky grassland with steep escarpments, deep valleys, and numerous watercourses. One watercourse is the headwaters of the famous river Sao Francisco in the northeast part of the park and this was my preferred study area.

The river runs with mild gradient about 14 km through the uplands before ending in the spectacular 200-m waterfall Casca d'Anta. Much of the river below the falls contains large rounded cliffs and gravel banks up to the Park border. All river habitats frequented are characterized by clear, oxygenated water that flows over rocks, stones, gravel, and limited areas of sand. Boulder-strewn rapids and numerous exposed cliffs alternate with wider channels or pools with reduced currents which may be quite deep. The meandering mountain streams are bordered in some areas by high banks with overhanging vegetation of luxuriant gallery forest, which forms patches in the surrounding cerrado.

The pair of mergansers that I mainly observed occupies the upriver stretch and a second pair is recorded downstream. A third pair exists about 50 km away along a river course and I have noticed about one more pair near the village Sao Roque de Minas. The ducks were daily located on foot by an exhaustive search along the river, by scanning of long river stretches from nearby hills, or from hides close to the water. Their movements and behavior were recorded with the help of binoculars and a telephoto lens.

At a distance, the ducks look almost uniformly dark with a greenish-black head and neck and a long drooping crest. The bill is slim and the birds have red legs and feet. When flapping its wings, the split wing panel of white in the secondaries and greater coverts can be seen. Males and females show little external dimorphism in size and proportions, except for a slight variation in the greenish neck region. The Brazilian merganser is therefore not a photogenic subject.

When the ducks became aware of my presence, which they could do at a very long range, they escaped by floundering along the surface, smashing their wings and then flying close to the water out of sight around the next bend of the river. I usually stalked in the shelter of the gallery forest, carefully avoiding open ground. Hidden along the bank in vegetation or behind cliffs, I was able to spend more time observing their movements, displays, feeding, diving, and resting behavior.

The food of mergansers living in the park is primarily a fish known as "lambari" (*Astyanax fasciatus*), which is abundant with sizes up to 15 cm in all creeks, rivers, and pools of the whole area. No other fish could be found in the waters of highland

*Merganser...*

plateau. The mergansers preferred rapids and cataracts with fast flowing white-water, where their prey was apparently abundant and easy to obtain. They could be observed with their heads submerged, but also diving and remaining under water for periods of about 13 seconds on the average. During the day, the ducks were found often preening on exposed rocks in the river but not walking very much when ashore.

From my observations during all the seasons, I know that the species is a year-round resident and territorial in the Serra da Canastra area. An adult pair remains strongly bonded and the male takes part in parental care. This was proven when I found a breeding pair rearing six chicks in the dry season during the middle of August 1984. The daytime activities and behavior were observed closely during two weeks along the upper Sao Francisco river within the Park. The merganser family spent all time in close association with the male present. In search of food, the ducklings occasionally spread some distance but quickly returned towards their parents when alarmed. The family foraged in the rapids or the young often fed on insects in the shallows close to the bank. Foraging occurred mainly during early morning and late afternoon hours. The chicks showed much agility and paid attention to the parents when they dove for fish. As soon as one parent surfaced, all the chicks hurried towards it, desperate to pick the prey from their parent's bill. I never recorded diving in these still very young downies but they did submerge their heads in the shallow water, probably consuming aquatic invertebrates.

When a contact call was heard from the leading adults, the ducklings answered with a high-pitched vocalization. The family rested at midday but at least one of the adults remained alert. When frightened, the entire family escaped by swimming off, uttering loud warning calls. They sought shelter under overhanging vegetation or gathered together in the open water. While swimming, the ducklings sometimes tried to mount their parents' backs like other merganser species.

The same family was again observed once in December 1984 which was undoubtedly the parents together with their full-grown brood. In February 1992, I observed three adult mergansers in flight and downstream of the waterfall. I was quite sure that these were the pair still accompanied by its now adult young, which were seen the year before during the breeding season as ducklings. The species, therefore, has a long-lasting family bond and the young are allowed to stay in their parents' territory during the forthcoming breeding season.

The species seems to have a very low reproductive rate or breeding success. For instance, the pair with the outstanding brood in 1984 was never seen again with chicks. When surveyed during and after the breeding season, I encountered the adult pair always along the stretch from the waterfall to the headwaters.

I observed the second pair during the breeding season having their territory downstream from the waterfall and partly in an area of private farmland. Despite careful searching, I never found a nest site in trees, once a pair had been located.

What will be the Brazilian merganser's future as a river specialist, extremely dependent on fast, clear mountain streams in remote areas, where human pressures and developments have not yet destroyed the pristine river ecosystem? They have become quite rare outside national parks and nature reserves. Within the Serra da Canastra, the protection is sufficient and the scarce merganser population can remain undisturbed. A limited area, mainly below and to a lesser extent above the scenic waterfall Casca d'Anta, has experienced increasing tourism and the ducks now appear to be avoiding such locations.

Unprotected regions peripheral to the park border and along the descending Sao Francisco river are indeed under severe threat from intensive diamond mining activities. Large river stretches are suffering from an increase in turbidity and a decrease in water quality. This no longer fits the specific habitat requirements of the merganser. Here, the species is indeed at the risk of extinction. Its survival outside the park can be only guaranteed by a strict protection of the river course and gallery forest within the private land. Also, farmers have to be included and engaged along with increased efforts of the IBAMA authorities for nature conservation and protection in that area.

According to the Global Waterfowl Conservation Assessment & Management Plan (1992), an immediate captive breeding program for the species is highly recommended. The Brazilian merganser has not yet been proven to survive in captivity, but with our knowledge in keeping and breeding other kinds of Mergini, a brood of downies can hopefully be reared as founders for a captive population of this species.

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*This report was submitted by Wolf Bartmann, Dortmund Zoo.*



## Australasian Regional Report

The Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA) has undergone significant development over the last year. The Association now has in operation a Southeast Asian Conservation Action Group together with Specialist Groups covering significant operational areas such as education, marketing, aquatic animal collections, horticulture, and veterinary services. The ARAZPA's Australasian Species Management Program (ASMP) continues to have close collaborative ties with the CBSG.

The primary responsibility of the ASMP is to generate species management and collection planning recommendations for its current membership of fourteen zoos throughout Australia and New Zealand. It does this by providing scientific, technical, and administrative support for co-operative collection management. This support is provided in the form of 1) management of computerized information systems, 2) organization of species management workshops and training courses, and 3) production and distribution of species management and collection planning documents.

Two major ASMP activities are the subjects of separate workshops. The following, together with the workshop reports, is a summary of ASMP activities since the last CBSG Annual Meeting (September 1993).

### Core Function Developments

1. An intensive Species Management Training Course was conducted in Sydney, New South Wales, during October 1994. Thirty staff members from all but two member institutions were able to attend. Participants were instructed in the use of ISIS software to create and analyze regional studbooks and were shown how to develop Species Management Plans by drawing on the results of studbook analysis. The ASMP was fortunate to have the involvement of not only two prominent Australian geneticists, Dick Frankham (Macquarie University) and Bill Sherwin (University of New South Wales), but also Kevin Willis (American Zoo and Aquarium Association) who was able to apply his experience with the Species Survival Plan (SSP) process in North America.

2. The ASMP Species Management Procedures Manual and the associated document "Readings in Species Management" were produced and distributed. The Procedures Manual details the roles and responsibilities of ASMP position-holders (Regional Studbook Keepers, Regional Species Coordinators and Taxon Advisory Group Convenors) as well as providing technical and scientific direction to people in these roles.

3. The ASMP's Animal Records Keeping Specialist Group produced a manual that is both an operational guide serving to standardize the way records are kept in Australasia and a training tool for people new to the position of Records Keeper. The

ASMP is grateful to the authors of the North American Animal Records Keeping Manual, Jean Miller and Judith Block, for allowing the inclusion of this document in the ASMP manual.

4. An electronic communications manual has also been developed and produced. This manual offers guidance in the use of the electronic communications network established and managed by the ASMP for member institutions and associates.

### On-going Species Management and Collection Planning Services

1. Australasia now has in place a computer-users support system whereby people using species management and/or collection planning software can receive assistance from ASMP staff. The software supported in this way includes ISIS-produced ARKS, SPARKS, and MedARKS as well as associated software such as Capacity, Genes, Demog, and REGASP. Assistance is provided in the form of technical notes and guidelines and direct support by phone and fax. Where necessary, ASMP staff can access the computer of a member institution using a modem link in order to resolve the problem being encountered by the user.

2. The 1994 edition of the ASMP Regional Census and Plan is in circulation. This document details the animal collections of member institutions as of 1 January 1994 and gives a summary of the collection plans of each institution for the next five to ten years. It combines this information with Taxon Advisory Group (TAG) recommendations for most species. The data published in this document is managed using the REGASP package.

3. The ASMP now has 35 regional studbooks registered for use by members and most of these have been posted on the ASMP electronic bulletin board so as to provide zoos with immediate access to all updates.

4. Species Management Plans for 23 species or sub-species have been produced. These documents are at various stages of the ASMP document review and approval process.

### Wildlife Agency Liaison Developments

1. The 23 Species Management Plans referred to above are in addition to 11 Recovery Plans produced by Australian state or federal wildlife authorities and involving one or more of our member zoos. The extent to which member zoos are involved in collaborative species recovery efforts is indicative of a strengthening relationship between zoos and Australian wildlife agencies. Similarly, the New Zealand Department of Conservation (DOC) has been collaborating with the Captive Management Advisory Group which includes representation from the ASMP. At least 12 species have been identified by DOC as requiring a strong captive component as part of collaborative recovery efforts.

2. Australia's national wildlife authority, the Australian Nature Conservation Agency (ANCA, formally Australian National Parks and Wildlife Service), now has representation on all ASMP TAGs. The ANCA staff will therefore be involved in the further development of the regional collection plan and in the production of captive Species Management Plans.

ARAZPA...

3. Another example of collaboration with ANCA is a proposal being jointly developed by ANCA staff and the ASMP Monotreme and Marsupial TAG. This is a proposal whereby ANCA will support and facilitate the allocation of international captive resources to the conservation of threatened Australian marsupials and is the basis of the Australasian Monotreme and Marsupial Global Captive Action Recommendations (GCAR).

*This report was submitted by Christine Hopkins, Conservation Coordinator of the Australasian Species Management Program.*

## Regional Collection Planning Using REGASP 2.1

The Australasian Species Management Program manages a database containing the collection planning details of its fourteen participating institutions, using a Foxpro™-based system called REGASP (Regional Animal Species Collection Plan). The REGASP system was developed in collaboration with staff of the International Species Information System (ISIS) and is designed to complement the functions of the ISIS software. Some interest has been expressed in applying the system to other regional programs and all suggestions received to date have been incorporated into the programs. The purpose of the workshop was to seek further input from the international zoo community on the operations of the REGASP software with a view to making the software applicable to zoo collection planning globally.

### Overview of the REGASP System in Australasia

Each zoo participating in the Australasian Species Management Program maintains an institutional copy of the REGASP database. This contains an 'in-house' component detailing the current and planned collection for that institution along with in-house collection management information and a 'regional' component, including details of the current and planned collections of all other ASMP institutions. The REGASP software periodically generates a report from each institution, including data on any changes to its current and planned collection. These updates are forwarded to the regional program office, where data from all ASMP participating institutions are compiled on a master database and an updated 'regional' component of REGASP is circulated back to each zoo. Each ASMP participating institution, therefore, is kept up-to-date with changing collections and plans of all other ASMP institutions.

### Summary of Uses

- Through the regular use of this system, zoos are able to create, develop, and implement collection plans for their zoos, while having access to: 1) the plans of other zoos in the region; 2) indicators of the wild status of the species as published by the

IUCN; 3) contacts of any other regional or international zoo programs for the species; and 4) global planning recommendations of the CBSG.

- The TAG Convenors and Species Coordinators are able to use the system to help generate and communicate species management recommendations, as well as to monitor the application of these recommendations.

- An in-house component of the system aids in the application of long-term collection plans to the activities of zoo staff.

- Animal management staff can make use of the system in the running of animal departments and associated exhibits. Husbandry notes, curatorial, and veterinary notes can be accessed regularly and updated, thereby assisting communication of collection plans within and between animal departments.

- The system supports the operation of joint breeding programs, joint programs for importation and collecting, and joint involvement in local and international recovery programs.

### System Components

The system has two components: the first is that REGASP resides in individual zoos, allowing staff to work on in-house data and view regional information; the second component, REGASP-Link, is the central database system used at the regional program office to combine the various institutional data sets and to generate regional reports such as the annual Regional Census and Plan.

### Workshop Outcomes

Workshop participants were provided with a development brief summarizing the functions of the system and a demonstration copy of REGASP 2.1. The software was demonstrated and the logistics of collection planning in various regions were discussed. With issues of planning being a high priority to zoos worldwide, a considerable amount of interest was expressed in the establishment of the REGASP System in other regions. As a result of the workshop and subsequent discussions:

- REGASP will be tested at the upcoming American Zoo and Aquarium Association Annual Conference by the AZA's Felid and Ursid TAGs;

- The establishment of a full REGASP system for the U.K. is being considered by the Federation of Zoological Gardens of Great Britain and Ireland;

- The Central Zoo Authority of India has expressed an interest in REGASP, as has several developing regions;

- The CBSG has undertaken to use a version of REGASP to generate and communicate global planning information produced via the CAMP and GCAR processes. Thus, REGASP will be used to facilitate not only institutional and regional planning but also planning at the global level.

In addition, a training workshop covering the use of REGASP was held during the November SEAZA Conference in Hong Kong as part of a series of training workshops organized by the CBSG. Delegates were shown how to use REGASP to assist in the development and implementation of institutional and regional collections plans for Southeast Asian zoos.

### Global Distribution of REGASP and REGASP-Link

The majority of the work involved in developing the REGASP system has already been carried out. The demonstration versions of REGASP distributed to workshop participants and to regional program coordinators are full working copies like those residing in Australasian zoos. However, in order to get the full value of the software, its use needs to be coordinated regionally using REGASP-Link.

While REGASP is ready for international distribution, the establishment of REGASP link in regions other than Australasia will require a significant amount of programming work. Programs that are currently designed solely for Australasia will need to be rewritten to allow functions to be customized at the regional level. Also, a detailed user manual will be required if the entire REGASP system is to be established in another region. If interest in the wider distribution of REGASP continues, it is likely that the ASMP will seek financial support from the developed regions so that the system can be made available without cost to the developing regions.

*This report was submitted by Christine Hopkins, Conservation Coordinator of the Australasian Species Management Program.*

## Australasian Monotreme and Marsupial GCAR Report

The Australasian Monotreme and Marsupial Global Captive Action Recommendations (GCAR) Working Group, with representation from Australia, Europe, and the USA, met to facilitate input from the international zoo community on a draft proposal dealing with Australian Marsupials. The Australian component of the GCAR is currently the most developed, and efforts are also now being directed towards developing global recommendations covering species endemic to Papua New Guinea.

The proposal covering Australian species constitutes an approach to zoo collection planning that was developed by the ASMP Monotreme and Marsupial Taxon Advisory Group in consultation with the Australian Nature Conservation Agency (ANCA), Australia's principal wildlife conservation authority.

The intention of the present proposal is to direct captive resources towards conservation objectives for Australian species as outlined in the IUCN/SSC Action Plan (*Australasian Marsupials and Monotremes - An Action Plan for their Conservation*). As the proposal includes the potential export of endangered Australian marsupials, it was necessary at this early stage to ensure adequate consultation between ANCA, appropriate state wildlife agencies, the IUCN/SSC Marsupial and Monotreme Specialist Group, the ASMP, and the international zoo community via the CBSG GCAR working group process.

### Application of the Proposed Process for International Zoo Collaboration.

1. Seek captive resources, sufficient to cover Action Plan recommendations, from within ARAZPA zoos and recommend alterations to zoo collection plans accordingly.

2. Should sufficient resources be unavailable within ARAZPA zoos, global zoo community options should be explored.

3. If international zoo community captive resources are sought, they should be directed initially towards species for which a Level 3 captive program is indicated in the Action Plan; that is, species recommended for captive research and/or educational programs rather than for genetic and demographic management. Acquisition of stock of these species would be dependent on:

- a. The establishment of an international studbook, and
- b. An agreement for the receiving zoo(s) to apply resources to research as recommended by the Recovery Plan.

4. Of the research topics recommended in Recovery Plans, many can be adequately covered by international zoos. Those requiring significant interface with field activities will still need to involve local zoos. Wherever possible, local resources should be reserved for direct application within a recovery effort and for research that cannot be adequately covered internationally.

5. Australian zoos should undertake work on species where the recovery plan outcome is pending, so as to be ready to contribute to the recovery effort if it becomes necessary.

6. Each recovery plan should consider utilizing international resources providing that:

- a. A studbook administered by a recovery team is operating, and
- b. International funds are made available to support field efforts.

7. The international zoo community can be offered an additional avenue of supporting the Action Plan recommendations by providing them with the opportunity of working with recommended analog species in order to:

- a. Research husbandry issues and veterinary protocols that would be of assistance to local zoos working on target species, and
- b. Gain experience that would ultimately prepare international zoos for direct involvement with Recovery Plan species.

### Benefits of the Proposal

1. Utilizes the Action Plan which has the endorsement of the ANCA.

2. Provides Australian zoos with an appropriate response to the international zoo community regarding how they can actively support the conservation of Australian species.

3. Provides the international zoo community with a means by which they can effectively contribute to the conservation of Australian species.

4. Provides ANCA with the means of influencing the direction taken with Australian species by zoos internationally.

5. Provides ANCA with the potential, through studbook

GCAR...

"contracts", to recall animals in cases where the animals are being inappropriately managed or are needed elsewhere.

6. Provides means by which international zoo resources can be applied in Australia according to local priorities (as outlined in the Action Plan and detailed in the Recovery and Threat Abatement Plans).

### Shortcomings of the Proposal

1. Does not address concerns about high-profile Australian species currently held overseas, e.g., Koalas.
2. Administratively problematical. e.g.,
  - a. In many cases, particularly with regard to species with short life spans and/or high reproductive rates, the time required to generate the appropriate permits and to effect the transport may negate the effectiveness of the program.
  - b. The scheme depends on cooperation between many agencies/organizations.
  - c. If not administered well, the scheme may be interpreted as "selling" Australian animals.
  - d. Studbook development and management is time consuming and costly.
  - e. The scheme depends on legal agreements operating internationally.

### Additional Considerations

1. The proposal could be developed with operational links to other regional programs. e.g., SSP and EEP.
2. The Australian Government may consider the requirement whereby "ownership" of all animals is retained.

### Species Covered by Proposal

Application of the reasoning given above, resulted in initial recommendations for international captive programs for six threatened species and 11 analog species. Note that on completion of the updated Action Plan, these recommendations are likely to change. Further, additional opportunities for the international zoo community to contribute to recovery efforts made arise as more Recovery Plans are written and/or updated.

### GCAR Briefing Book

Presented in the briefing book for the workshop were:

1. Endorsement of the proposed process by ANCA,
2. Background information on the current situation relating to Monotremes and Marsupials in Australia,
3. The proposed process for international zoo collaboration
4. GCAR spreadsheets on 30 species targeted for captive action,
5. Captive recommendations summary,
6. A case study for the proposed process of international involvement, and
7. Support material including:
  - a. Extracts of the IUCN/SSC Monotreme and Marsupial Specialist Groups captive recommendations

- b. Recovery, Threat Abatement and Research Plans for 19 species
- c. Updates on the status of these plans
- d. Draft CAMP extracts
- e. Taxonomic listing for Monotremes and Marsupials
- f. Red Book listing changes proposed by the IUCN/SSC Monotreme and Marsupial Specialist Group
- g. A sample disk of the Monotreme and Marsupial Module of Nomina (a taxonomic database of all scientific names applied to Monotreme and Marsupial species and sub-species) developed by Paul Andrew of Taronga Zoo, Sydney, Australia.

### Workshop Outcomes

Central to the group's discussion on the proposed process of international collaboration were issues related to quarantine restrictions, ownership of stock, studbook management, resources allocation alternatives, and the potential for field-based or research support.

The group determined to seek further comment on the proposal from the EEP and SSP TAGs as well as from the Asian region. All comments received during the workshop and subsequently will be discussed with ANCA with the aim of further developing and implementing the proposal.

*This report was submitted by Gary Slater, ASMP Monotreme and Marsupial Taxon Advisory Group Convener and Curator, Healesville Sanctuary, Victoria, Australia.*

## Report of the Southeast Asian Zoological Parks' Association (SEAZA)

### Third SEAZA Conference

As a result of the Third SEAZA Annual Conference in Bogor, August 1993, a communiqué was issued with the following items:

1. A new executive board was appointed for the next three-year term, 1993 - 1996:
  - President: D. Ashari (Indonesia)
  - Vice President: Usum Nimmanheminda (Thailand)
  - Secretary: Effendi A. Sumardja (Indonesia)
  - Member: Bernard Harrison (Singapore)
  - Member: Mohd. Nawayai bin Yasak (Malaysia)
2. A resolution was adopted to define the Southeast Region as being inclusive of Hong Kong and Taiwan.
3. It was agreed to issue new registration forms for associate members. The executive board was given the authority to decide on annual fees for institution and associate members.
4. A presidential award from the Chicago Zoological Society of US\$8,333 is to be allocated for training purposes. Implementation will be arranged by the executive board.

5. IUCN/SSC/CBSG chairman Dr. Ulysses Seal and his colleagues briefed the conference on current policies and initiatives in collective breeding propagation of endangered species worldwide.

6. The director general, Zoological Parks Organization of Thailand, presented a masterplan for conservation, prepared in cooperation with IUCN/SSC/CBSG, linking *in situ* with *ex situ* conservation programs, and termed CON-LINK.

7. The AAZPA (now AZA), as closest regional association neighbor, was represented by Mr. McAlister.

8. The CBSG Global Tiger Coordinator, Dr. Ron Tilson, presented the results of two Indonesian workshops on Sumatran tigers, the Regional Captive Breeding Plan, and a Population and Habitat Viability Analysis (PHVA). A regional studbook and masterplan for Sumatran tigers was developed by the zoos in Indonesia, the first of its kind in SEAZA.

9. A presentation was given by Suzanne I. Jackson, Director of Wildlife Information Network (W.I.N.), on the dissemination of veterinary information, with Southeast Asia as the initial region for the network.

10. Scientific sessions covered four topics:

- Training, education and zoo management
- Problems of captive breeding of endangered species
- *In situ* conservation of critical habitats of threatened or endangered species
- Appropriate efforts towards the improvement of professionalism in participating zoos

11. The Fourth SEAZA Annual Conference will be held in Hong Kong, hosted by the Hong Kong Zoological and Botanical Gardens, 15-18 November 1994. The Fifth SEAZA Annual Conference is scheduled for October 1995, in Taipei, Taiwan.

Preparations for the Fourth SEAZA Conference are underway and invitations and announcements have been issued by the organizing committee. It is hoped to have all 12 SEAZA countries represented: Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand, Hong Kong, Taiwan, Myanmar, Vietnam, Laos, and Cambodia. The generosity of the hosts in sponsoring the attendance of several representatives is greatly appreciated. All the member zoos need to be drawn into active membership and full participation in SEAZA. Discussion will be focused on organizational and administrative matters, establishment of membership categories based on SEAZA constitution, and new bylaws. Scientific and working sessions will cover topics outlined by CBSG, i.e.:

- Animal Records & Identification - ARKS record system
- Animal Health Records - MEDARKS
- National & Regional Collection Planning - REGASP
- Regional Studbooks - SPARKS
- National & Regional Collection & Masterplans
- Global Priorities & Recommendations for Regional & National Collection Planning - CAMPs, GCAPs, and GASPs.

### **Biodiversity in Southeast Asia**

The challenge to coordinate activities within such a diverse region is recognized; there is a wide diversity in status, size, and

development amongst the 60-70 institutions for the establishment of minimum standards and accreditation, and there are existing differences in political and cultural environments with a mosaic of diverse languages and scripts for the translation of documents and manuals.

Southeast Asia as a mega-diversity region is a major contributor to wildlife collections worldwide. 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". In the late 20th century, it is being recognized that biological resources have limits and that those limits are being exceeded.

The picture at the start of this decade showed a rapid loss of biological resources through deforestation, forest fire, overharvesting of plants and animals from the wild, indiscriminate use of pesticides, and pollution of the air and water. Yet, recent discoveries of animal species still occur in remote areas in Southeast Asia, e.g. the discovery of a new species of the ox family and a new species of fish and bird at the Vu Quang nature reserve in Vietnam, near the border with Laos. The World Wildlife Fund is urging Laos to establish a nature reserve in the adjacent Laotian mountain territory. Another discovery of a new species of tree kangaroo, *Bondegezoo*, was registered by a joint Australia-Indonesia expedition at the Maokop mountain range in Irian Jaya.

Therefore, to save the environment and its biodiversity, the Vu Quang nature reserve in Vietnam may be proposed as a new World Natural Heritage Site to the World Heritage Committee of UNESCO.

The process could be channeled through IUCN. Indonesia has two registered World Natural Heritage Sites: Ujung Kulon National Park (Javan rhino) and Komodo National Park (Komodo lizard). The third World Natural Heritage Site in process is the Lorentz National Park in Irian Jaya. This park measures 1,483,200 hectares and has 34 different ecosystems with more than 350 bird and 123 mammal species.

### **Environmental and Biodiversity Preservation**

During August 1993 to August 1994, extensive steps by governments and parliaments in Southeast Asia have been taken for environmental and biodiversity preservation, e.g.,

1. Proclaiming 1993 as the Year of the Environment. In Indonesia, all 27 provinces planted at least one million trees in each province.

2. November 5 was dedicated as National Flora-Fauna Day in Indonesia.

3. Presidential decree No. 4/1993 designated flora and fauna national flagship species in Indonesia.

4. In September 1993, the ASEAN inter-parliamentary organization, AIPO, issued a resolution on the protection of its natural habitats and the wildlife therein. The ASEAN comprises Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore and Thailand.

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5. The Indo-Pacific Fish Conference Workshop at Maumere issued the Maumere Declaration, urging the international community to collaborate towards the sustainable utilization and conservation of tropical marine resources.

6. An Asia regional workshop, which discussed the use of traditional beliefs and religious approaches as a tool for environmental preservation, was initiated by Earth-Wire, a joint network project between Antara News Agency and UNESCO.

7. A biodiversity action plan for Indonesia was issued by the Ministry of National Development Planning/National Development Planning Agency in 1993, and widely distributed in 1994 as a national consensus. A strategy for action was set out under four main headings: *in situ* conservation outside protected areas, coastal and marine, wetlands, production forests, and *ex situ* conservation.

8. An ASEAN ministerial meeting was held on the environment and conservation of biological diversity and sustainable utilization of its components within the region. At the meeting, it was decided to:

- adopt and implement the ASEAN Strategic Plan for Action on the Environment (1994-1998)
- respond to specific recommendations of Agenda 21, requiring priority action in ASEAN
- establish a regional framework on biological diversity conservation and sustainable utilization of its components
- declare 1995 as ASEAN Environment Year

9. The ratification instrument was law No 5/1994 on U.N. Biodiversity Convention and law No 6/1994 on U.N. Framework Convention on Climate Change.

### Workshops, Training Courses, Symposiums

The following workshops, courses, symposiums, etc. were held:

- workshop on Sumatran tiger
- regional captive breeding plan and Population & Habitat Viability Analysis (PHVA)
- regional studbook and masterplan as fundamental step for SEAZA
- zoo and wildlife medicine training course for senior veterinarians by Prof. Murray E. Fowler (December 1993)
- symposium on Indonesian otters, organized by the Indonesian Directorate General of Forest Protection & Nature Conservation (PHPA) in cooperation with the Asian Wetland Bureau (May 1994)
- workshop on Javan gibbon and langur by PHPA, the Indonesian Primate Society and CBSG (May 1994)
- symposium on terrestrial vertebrate biodiversity in Indonesia, by the National Institute of Sciences (LIPI) and the Western Australian Museum (July 1994)
- XV Congress of the International Primatological Society in cooperation with PHPA and the Indonesian Primatological Society (August 1994)
- workshop on Sumatran rhino, initiated by the International

Rhino Foundation (IRF) in cooperation with PHPA-CBSG, Indonesian Rhino Foundation (YMR), Taman Safari Indonesia (TSI), and the Indonesian Zoological Parks Association (PKBSI) (August 1994)

All the above activities were hosted by Taman Safari Indonesia (TSI) except for the XV Congress of the International Primatological Society which was held in Bali.

### Inter-regional Conservation Coordination Committee

After one year of trial and experience, the Committee on Inter-regional Conservation Coordination (CIRCC) feels that:

1. The CIRCC reporting system is a valuable instrument for the Regional Conservation Coordinators to inform and to be informed on important activities and happenings globally which have a bearing to the development of the region.

2. There are difficulties amongst the 12-nation, zoo community for compiling information to be reported and the dissemination of these reports on a bi-weekly basis. The SEAZA reports are not yet covering the full extent of recent happenings in the SEAZA. Rather they are limited to the ASEAN sub-region, comprising Brunei, Indonesia, Malaysia, Philippines, Singapore, and Thailand.

3. It may be more efficient and economical if the frequency of the CIRCC report be changed from bi-weekly to a monthly report.

### World Zoo Conservation Strategy

A total of 120 full documents and 250 summaries comprising the World Zoo Conservation Strategy (WZCS) were received by the SEAZA Secretariat on 25 January 1994. The WZCS was distributed concurrently by SEAZA executive board members to 12 countries: Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, Thailand, Hong Kong, Taiwan, Myanmar, Cambodia, Laos, and Vietnam. The WZCS was targeted at cabinet ministers and other government officials responsible for environment and wildlife, zoological and botanical gardens, safari-bird-reptile parks, aquaria and other related institutions, non-governmental offices and interested parties.

The documents were well appreciated amongst government officials and the zoo community and have resulted in praise and congratulations to Dr. de Boer for his efforts. A foreword by the president of WWF boosted the image of zoos in partnership with conservation organizations in the global task of conserving nature and the natural environment. The conservation potential of the zoo community is aimed primarily at supporting the conservation of habitats and ecosystems. The strategy is also intended to heighten the motivation of zoo personnel and increase the commitment and support of governmental agencies responsible for conservation in the wild.

*Ex situ* conservation should be further developed. Although some regions have already gone for the establishment of such programs, a beginning still needs to be made in other parts of the world. This is the present situation in the Southeast Asian region.

Zoos and zoo associations in developed countries should help developing regions to improve their overall standard of

professionalism. This is of particular importance, as many of the endangered species in breeding programs are native to these parts of the world. This particular philosophy should be more emphasized as a statement of policy and placed in a box in the next edition of this "living document".

National zoo associations need to translate the documents into national languages and scripts. There are eight different languages in Southeast Asia. However, Brunei, Malaysia, Singapore, and Indonesia may use one common language, Malay-Indonesian. Some countries may need a French version (Cambodia, Laos, and Vietnam) and some a Chinese translation (Hong Kong, Taiwan). Another important document to be translated by national zoo associations is the "Zoo Manual", a basic instrument for education and training in management and animal husbandry.

*This report was submitted by General D. Ashari, Indonesian Zoological Parks Association.*

## Vu-Quang Nature Reserve Recommendation

Southeast Asia has a vast coverage of tropical rain forests. The conservation of the fauna of these forests and other major ecosystems is a concern of zoological parks and aquariums in the region and worldwide.

In the late 20th century, we have come to realize that biological resources have limits and that people are exceeding these limits. We face continuing rapid loss of biological resources through deforestation, forest fires, overharvesting of plants and animals from the wild, indiscriminate use of pesticides, and pollution of the air and water bodies.

Yet, recent discoveries of animal species still occur in remote areas in Southeast Asia, i.e., new species of mammals, birds, and fishes at the Vu-Quang Nature Reserve in Vietnam and possibly in the adjacent mountain territory in Laos. Another discovery of new species of mammals, birds, and freshwater fishes occurred in Irian Jaya, Indonesia. These centers of biological diversity need to be conserved;

Therefore, this annual meeting of CBSG recommends that the Vu-Quang Nature Reserve in Vietnam and the adjacent territory in Laos be proposed by those countries for the *World Natural Heritage List of UNESCO*. We urge that these countries be assisted by zoological societies, other conservation organizations, and IUCN to obtain and maintain the status of a World Natural Heritage Site for the Vu-Quang Nature Reserve and adjacent Laotian territory.

## Overview of the Indonesian Sumatran Tiger Program

Habitat loss and fragmentation and poaching have led to the decline of the Sumatran tiger in the wild. To address the "critical" status of Indonesia's last remaining tiger subspecies, several workshops and ongoing programs have recently taken place in Indonesia to effectively manage the Sumatran tiger.

The lack of good data on the status of wild tiger populations and tiger habitat in Sumatra led to the development of a Sumatran Tiger Population and Habitat Viability Analysis (PHVA) workshop, which was held in Padang, West Sumatra in November, 1992. Participants included park staff from the Indonesian Department of Forest Protection and Nature Conservation (PHPA), field biologists, non-government organizations, and international specialists.

The goals of the PHVA workshop were to: conduct a metapopulation and habitat viability assessment using the Geographic Information System (GIS) for all wild Sumatran tiger populations; formulate management strategies for each population to achieve self-sustaining, viable populations throughout the subspecies' range; and prepare recommendations to PHPA, the Tiger Global Animal Survival Plan (GASP), and the IUCN/SSC Specialist Groups to achieve these goals.

The evaluation of tiger populations and habitat concentrated on the five national parks of Sumatra: Gunung Leuser, Kerinci Seblat, Berbak, Barisan Selatan, and Way Kambas. As these areas have been declared national parks, they are the areas most likely to provide long-term protection of tiger habitat. Using Atlas Geographic Information System (GIS) software, a map-linked database was generated for each park using satellite imagery vegetation maps and Indonesian land-use and forest status maps.

A 10 m x 10 m grid was placed over each map. The PHPA staff from each park verified the land use type and forest cover for each grid and provided information regarding the presence or absence of tigers and the abundance of tiger prey. From this information, a map of each park was developed, showing tiger distribution within the park as reported by the PHPA.

Komar Soemarna, then the PHPA Director of Nature Conservation, led PHPA staff and international specialists in estimating population size, available tiger habitat, threats to tigers and habitat, rate of problem tiger removal by PHPA, and level of poaching for each tiger population within the protected areas.

Population estimates were derived for each of seven protected areas (five national parks and two game reserves). The largest tiger population was estimated to be 110 tigers in Gunung Leuser National Park (NP). Other estimates were: Kerinci Seblat NP (76 tigers), Barisan Selatan NP (68 tigers), Berbak NP (50 tigers), Way Kambas NP (20 tigers), Rimbang Game Reserve (42 tigers), and Kerumutan Game Reserve (30 tigers). Many of these populations may be fragmented into smaller Sumatran tiger subpopulations. The total wild Sumatran tiger population

*Tiger...*

was estimated to be about 400 tigers in protected areas, with perhaps another 100 tigers living outside protected areas. Population extinction modeling using *Vortex* software suggested that removal through poaching or for other reasons should be minimized, and populations below 100 tigers will need demographic and genetic management to remain viable.

Based on all of the information generated during the PHVA, the workshop participants drafted an *Indonesian Sumatran Tiger Action Plan* outlining short-term and long-term goals for management of wild tiger populations.

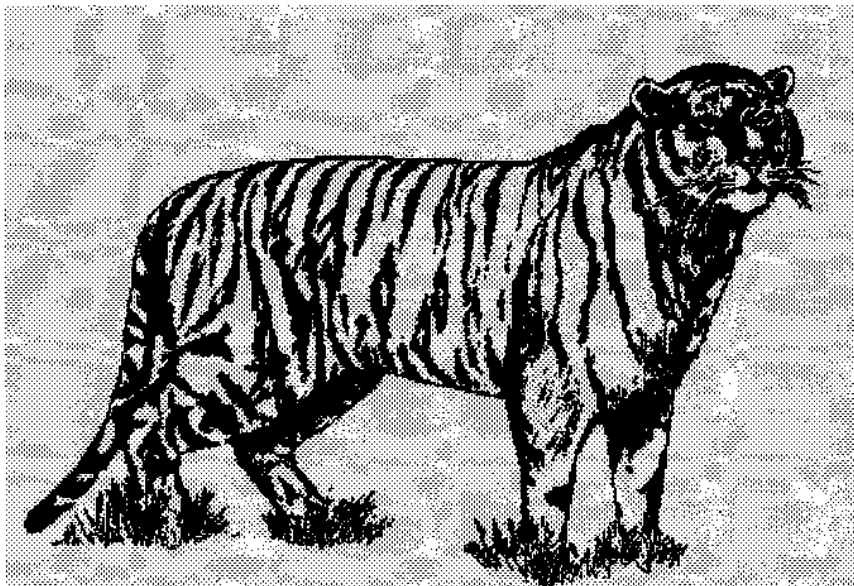
*Short-term Goals*

1. Establish a Tiger Desk Officer.
2. Improve the ability to acquire data and use the GIS system.
3. Develop a standardized mapping system.
4. Initiate tiger field studies.
5. Evaluate extending boundaries of protected areas to expand or connect tiger habitats.

*Long-term Goals:*

1. Integrate *in situ* (protected areas) and *ex situ* (captive breeding) tiger programs in Indonesia, forming a comprehensive tiger conservation management program.
2. Analyze land use practices in all tiger habitat and use data to suggest possible viable population management strategies.
3. Integrate tigers into conservation education programs in Indonesia.
4. Draft an *Indonesian Conservation Strategy for the Sumatran Tiger*.

The precarious status of the Sumatran tiger in the wild indicated an urgent need for a Regional Captive Breeding Program for the subspecies in Indonesia. The first step in the development of this program took place at the Sumatran Tiger Captive Breeding Workshop held at Taman Safari Indonesia in November, 1992. This workshop was attended by staff from most of the PKBSI zoos in Indonesia as well as by international tiger specialists. The goals of this workshop were to construct a captive breeding tiger facility, establish a regional Sumatran tiger stud-



book, and develop an *in situ* regional captive breeding program for Sumatran tigers.

One of the first steps was to design and construct an *in situ* captive breeding facility for tigers. Because Taman Safari (TSI) had already been designated as a Center for the Reproduction of Endangered Wildlife in Indonesia and because TSI had also been designated by the Directorate General of PHPA as the official repository for wild-caught tigers coming out of Sumatra, TSI was viewed as the most appropriate site. The facility was dedicated at the workshop and is large enough to maintain four or more adult breeding pairs of tigers. Each tiger is provided with an indoor and outdoor area. The facility also includes mixing and breeding areas and maternity dens with outside runs. The costs for the construction of the facility were equally shared by Taman Safari Indonesia and by 18 North American zoos through the AZA Tiger SSP.

Development of the tiger breeding facility included the training of zoo staff in animal husbandry and animal health techniques, including hygiene, nutrition, record-keeping, and preventive health care. These procedures were discussed and refined into an Indonesian Tiger Husbandry Manual. Veterinary staff attended tiger immobilization training sessions focusing on proper animal health procedures for medical treatment, immobilizations, immunizations, evaluations, and health maintenance. Zoo staff were also able to observe and learn assisted reproduction techniques. Four male Sumatran tigers were immobilized and electroejaculated to collect semen. Sperm evaluation and cryopreservation were also demonstrated as the initial step in the development of an Indonesian Tiger Genome Resource Bank (GRB).

A second important component in the development of the Indonesian regional tiger program was the establishment of the *Indonesian Sumatran Tiger Regional Studbook*. This include staff training in ISIS computer software programs (ARKS and SPARKS), the appointment of an Indonesian Regional Tiger Studbook Keeper, the compilation of data and records from

Indonesian zoos to form the studbook database, and the permanent identification and registration of all studbook Sumatran tigers. All tigers in the PKBSI tiger program are now assigned either a temporary or permanent studbook number. This number is tattooed on the inside thigh of the tiger when they are immobilized to ensure positive identification.

With the facility, studbook, and staff training in place, the PKBSI was able to form a



Sumatran Tiger Management Group, establish PKBSI Sumatran Tiger Coordinators, and begin the formulation of an Indonesian Regional Sumatran Tiger Masterplan. Uncertainties in the studbook limited the extent to which the masterplan could be developed during the workshop.

A team of six tiger specialists from North America and Australia returned to Indonesia in February 1994 and were joined by two Indonesian zoo staff from Taman Safari Indonesia. The aim of this team was to complete the training of Indonesian zoo staff, to complete the verification of PKBSI tigers in the regional studbook, and to collect biomaterials for the establishment of a Tiger Genome Resource Bank.

The Sumatran Tiger Team visited seven Javan zoos during a two-week period: Taman Safari Indonesia (Cisarua-Bogor), Kebun Binatang Ragunan (Jakarta), Kebun Binatang Bandung (Bandung), Gembira Loka (Yogyakarta); Satwa Taru Surakarta (Solo), Tinjomoyo Semarang (Semarang), and Kebun Binatang Surabaya (Surabaya). At each zoo, each Sumatran tiger was immobilized, weighed, and given a complete physical examination. Zoo staff were trained in routine medical procedures such as immobilization, monitoring vital signs, and dental cleanings.

Each tiger was given a tattoo with its permanent or temporary studbook number. A transponder was also inserted under skin at the shoulder and the transponder number was recorded in the studbook and in the animal's permanent records. Each tiger can now be positively identified by reading the animal's transponder number, eliminating any confusion in identities.

Blood was taken for blood chemistry laboratory tests and for storage in a blood serum bank. Blood and tissue biopsies were also taken for cryopreservation for future molecular DNA analysis. Semen was collected from genetically important males through electroejaculation, and sperm pellets were frozen in dry ice. These sperm samples were then cryopreserved in liquid nitrogen for the Indonesian Tiger Genome Resource Bank.

An evaluation of husbandry procedures, facilities, nutrition, and record-keeping systems was made at each zoo. Zoo records were checked to verify studbook information. To summarize the accomplishments of this project, the Sumatran Tiger Project Team:

1. Visited all seven zoos of Java in 13 days.
2. Gave physical examinations to 43 tigers.
3. Tattooed and implanted transponders each tiger.
4. Initiated a blood serum bank for tigers.
5. Obtained tissue biopsies from 31 tigers.
6. Collected semen from nine males.
7. Initiated an Indonesian Genome Resource Bank for tigers.
8. Evaluated all tiger facilities and policies.
9. Over 140 Indonesian zoo staff participated in the project.

A PKBSI Sumatran Tiger Masterplan Meeting was then held at Taman Safari Indonesia, during which the Project Team presented its findings and recommendations to the Sumatran Tiger Management Group. At the time of this meeting, the PKBSI Sumatran Tiger Program was comprised of 55 living captive tigers in seven Javan zoos (51 tigers) and four Sumatran

zoos (four tigers). There were 16 living and five dead potential founders to the captive population; six of these founders have been verified by PHPA records as wild-caught, and records are being checked for the remaining founders. Seven tigers were declared surplus due to age.

The PKBSI made several recommendations based upon information and discussion generated at the workshop. General recommendations included the following:

1. Perform a molecular DNA analysis (currently underway).
2. Correct the International and Regional Tiger Studbooks.
3. Secure equipment and require annual physicals.
4. Establish blood serum and genome banks (both are now established at Taman Safari Indonesia).
5. Pursue training in assisted reproductive and cryopreservation techniques.
6. Integrate the PKBSI tiger program with the IUCN/SSC CBSG Tiger GASP.

Specific recommendations made at the workshop were:

1. Verify the wild-caught status of ten living and five dead founders with PHPA.
2. Repair dental problems for five managed tigers.
3. Complete tattoos and transponders for seven tigers in Java and four tigers in Sumatra.
4. Monitor two founders with renal problems.
5. Breed two pairs of verified founders at TSI.

The most recent development of the Indonesian captive tiger program is the formation of a conservation partnership between Taman Safari Indonesia and Crown Pacific Jaya. Financial support from Crown Pacific will be used to:

1. Establish a Tiger Rescue Team to rescue wild "problem" tigers in Sumatra.
2. Provide support for the Sumatran Tiger Rescue Center at Taman Safari.
3. Support the Tiger Genome Resource Bank.
4. Develop a conservation education program at Taman Safari Indonesia to increase public awareness of the Sumatran tiger.

The workshops and projects outlined here comprise Indonesia's initiative to develop a comprehensive management strategy for one of its most threatened species, the Sumatran tiger.

The Indonesian PKBSI Sumatran Tiger Regional Captive Program will ensure the maintenance of a secure captive population which may contribute to the survival and recovery of wild tiger populations in Sumatra and which will interact globally with other regional Sumatran tiger programs in Australasia (ASMP), Europe (EEP), and North America (SSP) as part of the global Tiger GASP.

This combined effort is the basis for developing and implementing an effective conservation strategy to protect wild and captive Sumatran tiger populations in Indonesia.

*This report was submitted by Jansen Manansang, Taman Safari Indonesia.*

## Japanese Association of Zoological Gardens and Aquariums



Under the guidance of the CBSG, the Species Survival Committee Japanese Association of Zoological Gardens and Aquariums (SSCJ) is making steady progress. The 6th Annual Meeting of SSCJ was held at Osaka City last year. The SSCJ organized propagation groups for 44 species of endangered animals and ten species of Japanese freshwater fish. Successful propagation, or progress for the propagation, of such animals as the lion-tailed macaque, gorilla, black lemur, ruffed lemur, red panda, cheetah, California sea lion, Kuril harbor seal, black rhinoceros, Japanese serow, Japanese golden eagle, Blakiston's fish owl, Humboldt's penguin, salmon-crested cockatoo, Asian arowana, and several species of Japanese freshwater fish was reported.

The gorilla propagation working group succeeded in gathering eight gorillas from six zoos in Japan into a new enclosure named "Woods of Gorillas" at Ueno Zoo. In April, a female black rhinoceros was born as part of the first propagation plan of the SSCJ. However, the captive population of black rhinoceros in Japan is too small to be self sustaining and new founders will need to be imported. Last year, one male was imported from the U.S., but it was learned that the it was a descendant of the captive-born rhino in Japan.

For two years, Japanese serow (*Capricornis crispus*) were sent to Vienna, San Diego, Seattle, and Berlin under the guidance of the species propagation coordinator. In the past 30 years, over 25 Japanese serows have been exported with no evidence of their exportation through any commercial dealer.

The Fifth International Giant Panda Conservation Symposium was held at Chengdu, China in September, 1993. The Japanese Association of Zoological Gardens and Aquariums (JAZGA) sent a delegation, including the chairperson, to discuss the *in situ* and *ex situ* conservation of the giant panda. At that symposium, a policy on panda loans and cooperative breeding was developed by JAZGA and subsequently agreed upon by JAZGA and the Chinese Association of Zoological Gardens in July, 1994. A task force was organized to implement a long-term breeding loan of giant pandas between Chengdu Giant Panda Breeding Base, China, and Adventure World of Wakayama Prefecture, Japan. In August and again this fall, a pair of young giant pandas were sent to Wakayama for cooperative breeding.

In April, the Japanese government issued the *Law for Species Survival*, and under this law, the Environmental Agency began to organize several working groups for the *ex situ* propagation of such endangered species as the Tushima cat, Iriomote cat, Blakiston's fish owl, Japanese crested ibis, red-crowned crane, and others. The SSCJ intends to participate and cooperate actively with these working groups.

The International Forum on Reintroduction for Oriental

White Stork was held in June in Toyooka, Hyogo Prefecture. It was supported by the Agency of Cultural Affairs, the Environmental Agency, and many non-governmental organizations concerned with ornithology, conservation, and education. For several years, captive propagation of the oriental white stork, *Ciconia boyciana*, has proceeded successfully in Tama Zoological Park and the Toyooka Breeding Center for Storks. An opportunity for their reintroduction may be in the near future. At the Forum, a plan entitled *A Home Park for the Stork* was made public; it is intended to serve as the basis for their reintroduction. The plan asks for the cooperation of the residents of the region.

The 7th Annual Meeting of the SSCJ was held in Saitama Prefecture in September, the results of which will be reported in a future issue of *CBSG News*.

*This report was submitted by Atsushi Komori, Executive Director, Japanese Association of Zoological Gardens and Aquariums.*

## India Report



The CBSG, India is committed to following up PHVAs, particularly with educational activities. This year, an attractive A-4 Project Brief for Manipur brow-antlered deer has been made in collaboration with British Airways Assisting Conservation which will be distributed to different zoos and particularly the Manipur Forest Department. Other follow-up activities with the Forest Department of Manipur are in process.

Funds are being sought for production of educational materials for zoos and in appropriate languages for use in grass roots programs for the lion-tailed macaque, Asiatic lion, and rhino. For the lion-tailed macaque PHVA, some follow-up activities have been done in the area of education, e.g., funds have been collected from Indian industry for literature in three local languages.

The PHVAs conducted in India so far have been comparatively large in attendance with only a small amount of overlap as they have been done in different regions, attracting different zoo and wildlife personnel for those regions. More than 300 people from the *in situ* and *ex situ* community as well as universities and non-government offices (NGOs) have experienced the PHVA process. Equally significant is the few who have attended several PHVAs so that we now have a "team" of local people who can run PHVAs. We have an internationally respected population biologist, Dr. R. Sukumar. Dr. Ravi Chellam, a scientist at the Wildlife Institute of India, M. Sanjay, the Program Officer in our office, and myself attended the CBSG Facilitators Workshop held in Minnesota recently.

Whereas outside interest initiated the lion-tailed macaque, Asiatic lion and Indian rhino PHVAs to a great extent, the fact of having had them and including so many people in the process has led to an entirely different situation. Now, we are getting

requests for PHVAs entirely initiated by local officials and researchers for species which are of great local concern. A PHVA for the grizzled giant squirrel has been requested by the Tamil Nadu Forest Department and will be held possibly in December 1994. A PHVA for gharial has been requested by Dr. R. J. Rao, a researcher, and the Madhya Pradesh Forest Department and this is scheduled for January 1995. These will be entirely conducted by the in-country team, although the chairman of the appropriate taxon specialist group and other relevant professionals will be invited. A PHVA for wild ass has been requested by Dr. Nita Shah and it is likely to be combined with other training by U.S. Seal and others at the Wildlife Institute of India.

As a result of the generous funding from western zoos, a surplus of briefing materials were made for the lion-tailed macaque and Asiatic lion and they have been sent to the 17 branches of the Zoological Survey of India (ZSI) along with other CBSG materials. The ZSI is the official government of India zoological research establishment. This has been much appreciated and many of these branches are regular subscribers to our literature now.

### **Networking the Subcontinent**

India is surrounded by small countries which are quite isolated, e.g., Nepal, Sri Lanka, Pakistan, Bangladesh, and Bhutan. There has been an attempt to bring these countries into closer association with India through SAARC, the South Asian Association for Regional Cooperation. The political situation associated with many of these countries is really difficult which makes normal cooperative activities impossible. The CBSG, India is trying to bring the zoo, wildlife, university, and botanic communities of these countries into our information network as the least controversial and most helpful contribution. We have identified 150 key professionals in Nepal and sent them a variety of CBSG materials. The respondents to our initial mailings will go on a list for further interaction and we will build from there.

### **Distributing Newsletters of SSC**

We have also taken on the distribution of newsletters of the SSC taxon-based Specialist Groups to appropriate people and institutions in India more widely than can be done by the Specialist Group.

### **Plants**

We have also begun a focused program to catalyze coordination and communication in the botanic conservation community, including gardens, research institutes, and NGOs. This was undertaken on request from some officials from the botanical community. A special issue of ZOOS' PRINT on plants has been published. We are in the process of planning a CAMP for medicinal plant species in the Western Ghats requested by a local NGO. This will include additional training which will result in other CAMPs and PHVAs. There is also a plan for organizing a training workshop in botanic conservation education for botanic institutions open to the public.

### **Universities**

An Indian branch of the Consortium of Universities, Aquaria, and Zoos is now being coordinated by the ZOO/CBSG, India office. We have contacted the zoology and botany departments in all major universities in India and sent packets of information on CBSG, the processes, and, in many instances, an example of a PHVA briefing book.

### **Amphibians and Invertebrates**

We have also begun a program to identify universities and other research institutes working on amphibians and invertebrates in particular. We are coordinating field research projects on amphibians funded by Friends of Rare Amphibians of the Western Ghats (FRAWG), a Minnesota Zoo-based organization. The objective of these activities is to link up with zoos interested in exhibiting amphibians and invertebrates and organizing conservation programs. Presently, there is not a single zoo in India exhibiting amphibians and invertebrates.

### **Zoo and Wildlife Veterinary Directory**

For the CBSG, India Veterinary Special Interest Group, we have been collecting names for a comprehensive directory of zoo and wildlife veterinarians which also includes some of their experience and special casework.

### **Education**

The Education Special Interest Group organized two workshops last year in four zoos in four southern states and in four zoos in four western states. One was on Conservation Science Writing with Jeremy Cherfas of ZOO 2000 fame and focused on teaching zoo personnel and journalists how to interact so that constructive reports on zoos come out in the press. The other featured Malcolm Whitehead of the International Centre for Conservation Education, entitled *Using the New Zoo Sciences to Communicate Conservation* and featured how advanced research subjects can be interpreted and used to catch public attention and show them the conservation potential of zoos. Another series on Environmental Enrichment in the zoo will also be given in four zoos in four southern states. These educational workshops are an ongoing feature sponsored by the British Council and British Airways Assisting Conservation.

### **Reprinting of World Zoo Conservation Strategy**

Finally, Indian industry has contributed funds to make the first reprinting of the World Zoo Conservation Strategy. This means that subsequent printing will be cost effective. Additional sets of 1,000 copies of the World Zoo Conservation Strategy can be printed for \$500 which translates to \$0.50 for a set of the complete Strategy and Executive Summary.

We encourage western zoos to sponsor a country in Asia with 1,000 sets. We will attempt to organize transport with our airline contacts.

*This report was submitted by Sally Walker, Zoo Outreach Organisation.*

## Wild Cattle Working Group

A wild cattle preliminary CAMP was hosted in San Diego in March 1994 by the Zoological Society of San Diego. Twenty-eight taxa were examined. The GCAR document produced is included in the CBSG Annual Meeting briefing book.

Categorization of the 28 taxa is as follows: Critical, five taxa; Endangered, 12 taxa; Vulnerable, one taxon; Secure, three taxa; Insufficient Data, seven taxa.

An Asian Wild Cattle CAMP is being planned for July 1995 in Thailand. The CAMP will be co-sponsored by the Thai Zoo Association and Royal Forestry Department. The goal of the workshop is to get as many biologists to work with field managers who have knowledge and experiences with taxa from the range countries. Generating a comprehensive invitation list is a priority need in the coming months and suggestions would be greatly appreciated.

The goal of the CAMP is to continue to revise the CAMP data as well as to refine the accuracy of the GCAR document to make captive management recommendations.

Also, for the last three years, Dr. Jean Brennan has been carrying out taxonomic research on gaur in the range countries of Malaysia and Thailand and all animals held in U.S. zoos. Her report, which should be of great help in defining gaur taxa, was to be presented at the American Zoo and Aquarium Association (AZA) meeting held in September.

*This report was submitted by Larry Killmar and Lee Simmons, Omaha's Henry Doorly Zoo.*

## Report of the Central Zoo Authority, India

The Indian zoo community does not want to make tall claims about grand successes during the last year. However, the pace of activities on different aspects of zoo management has definitely accelerated. They have carried out detailed evaluation of all the large zoos and some of the medium and small zoos. The evaluation has revealed inherent weaknesses in the field of planned breeding of endangered species, population control measures of prolific species, and appropriately-designed education programs. The most encouraging aspect of the evaluation is the traditional expertise that the keepers in many zoos have. All efforts to motivate this level of staff have to be taken.

In the field of zoo design and zoo architecture, there has been a constant improvement. Zoos created in recent years extend over very large areas and most of the displays are very naturalistic. Van Vihar, Bhopal, has panthers in open-moated enclosures and tigers in a 46-ha moated enclosure.

The important activities during the last 12 months are three

Population and Habitat Viability Analysis Workshops, four veterinary workshops, and printing of studbooks on Asiatic lion, royal Bengal tiger, and sangai. Data regarding the number and sex ratio of almost all the endangered species has been compiled. Extensive exchange programs have been organized to safeguard against inbreeding endangered species.

A zoo management capsule course for 30 supervisory officers was organized at Madras. A course for wildlife veterinarians is being planned at Indian Institute of Veterinary Sciences.

Networking of research institutions and zoos is proposed. The Center of Cellular and Molecular Biology, Hyderabad, has been given a special project on DNA fingerprinting and cryopreservation of germ plasm.

Species coordinators have been elected by the zoo directors for various species and planned breeding programs are to be initiated. Single representatives of endangered species are to be moved to make socially-viable groups.

It is hoped that in the coming years, there will be fewer common animals, hybrid or inbred animals, and single animals of endangered species and that zoos would start making significant contributions towards *ex situ* conservation. Having infused enthusiasm into zoo directors, zoo management will show significant growth in the right direction in the coming years.

*This report was submitted by Sri S. C. Sharma, Zoo Authority/India.*

## African Preservation Program Report



The first African Preservation Program (APP) Coordinating Committee Meeting was held at Marks Park Conference Centre Johannesburg on 22 June 1994 during the PAAZAB Conference. The request by both Prof. Tony de Freitas (APP-TC Invertebrates) and Mike Penrith (APP-TC Fish) that these two TAGS be suspended pending more information on their two taxon groups was granted. Both APP-TAG coordinators were requested to keep monitoring the situations and advise the APP Committee accordingly; this was despite the fact that Mike Penrith had resigned.

The APP's first year of operation was used to develop our TAGS:

1. Mammal TAG, APP-TC, F. Schoeman (Pretoria Zoo) has 14 members.
2. Bird TAG, APP-TC, A.N.S. Abrey (Umgeni River Bird Park) has eight members.
3. Reptile/Amphibian TAG, APP-TC, D. R. Morgan (Transvaal Snake Park) has 12 members.
4. Genome Resource TAG, APP-TC, P. Bartels (Wild-life Breeding and Research Centre) has four members.

It is well to remember at this stage that the Genome Resource TAG is a service TAG and will follow the recommendations of

the other TAGs with regard to recommended species. However, suggested APP taxa from the Genome Resource TAG are African wild dog (*Lycaon pictus*), the black rhino (*Diceris bicornis*), and the riverine rabbit (*Bunolagus monticularis*). Just prior to the PAAZAB Conference in 1994, the Genome Resource TAG held an extremely successful workshop in Pretoria. On behalf of the APP Committee, I should like to congratulate Dr. Bartels, his workshop committee, and his TAG on the success of this workshop, which I believe was the first of its kind to be held anywhere in the world!

The seven mammals chosen for APP intervention are:

#### Full APPs

1. African wild dog (*Lycaon pictus*), species coordinator, Marienne de Villiers from the Mammal Research Institute, Pretoria.
2. Riverine rabbit (*Bunolagus monticularis*), no species coordinator as of yet.
3. Suni (*Neotragus moschatus*), species coordinator Dr. Ferdi Schoeman, Pretoria Zoo.
4. Cheetah (*Acinonyx jubatus*), species coordinator Laurie Marker-Kraus, Cheetah Conservation Fund, Namibia.

#### APP Designate

1. Cape Grysbok (*Raphicerus melanotis*), species coordinator Paul Hart, Tygerberg Zoo.

#### APP Nominate

1. Sable antelope (*Hipotragus niger*), species coordinator Dr. Paul Bartels, Wildlife Breeding and Research Centre.
2. African wild cat (*Felis lybica*), species coordinator Dr. Ferdi Schoeman, Pretoria Zoo.

The APP birds are:

#### APP Designate

1. The Cape vulture (*Gyps coprotheres*), species coordinator Carol Walton, Tygerberg Zoo.

#### APP Nominate

1. The Cape parrot (*Poicephalus r. robustus*), species coordinator Glen Holland, Natal Parks Board.
2. Southern ground hornbill (*Bucorvus leadbeateri*), species coordinator Eugene Marais, Pretoria Zoo.
3. Blue crane (*Anthropoides paradiseus*), species coordinator Dr. Ferdi Schoeman, Pretoria Zoo.

The APP Reptiles/Amphibians are:

#### Full APP

1. Geometric Tortoise (*Psammodromus geometricus*), species coordinator Dave Morgan, Transvaal Snake Park.
2. Sungazer (*Cordylus giganteus*), no species coordinator as of yet.
3. Southern African rock python (*Python sebae natalensis*), species coordinator Ian Visser, Johannesburg Zoological Gardens.

#### APP Designate

1. Dwarf Crocodile (*Osteolemus tetraspis*), species coordinator Dave Blake, St. Lucia Crocodile Centre.
2. Radiated Tortoise (*Geochelone radiata*), no species coordinator as of yet.
3. Malagasy ground boa (*Acrantophis*

*madagascariensis*) species coordinator Dave Morgan, Transvaal Snake Park.

#### APP Nominate

1. Angolan Dwarf Python (*Python anchietae*), species coordinator Dave Morgan, Transvaal Snake Park.

#### APP Indeterminate

1. Cape Platanna (*Xenopus gillii*). There are none in captivity at this stage nor is there a species coordinator, but this species will be investigated in the coming year.

The African Preservation Programme Charter and Organizational Structure 1993 document as ratified by PAAZAB Council in Durban during June 1993 has been finalized, edited, and printed by Dave Morgan. The French version, required by PAAZAB constitution, was kindly translated by Dr. Bihini Won Wa Musiti and was received on 6 June 1994, which did not allow time to have it ready for this meeting. We are extremely grateful to Dr. Bihini for having carried out this monumental task so ably.

As part of our planned second phase of the development of the APP, we have also produced the following draft documents which will be of assistance to anyone wishing to become involved in APPs:

1. Procedural Guide (Primary Draft)/Responsibilities of African Preservation Programme Species Coordinators (APP-SC),
2. African Zoo Directory 1993, and
3. Procedural Guide for Species Coordinators (APP-SC).

I appealed to PAAZAB members to pass on to me any newsworthy items for transmission to the Regional Conservation Coordinators Committees Communications Network. I am in the process of cataloguing all the CBSG information material to form an APP lending library for the use of PAAZAB members.

I feel that the time is rapidly arising when we must obtain a better picture of what is happening in zoos north of South Africa. You may have noted that all APP programs, except one, are being coordinated from South Africa! This is obviously contrary to our pan-African mission! I am embarking on a correspondence saturation strategy with all the institutions listed in the African Zoo Directory, telling them of PAAZAB and the APP and suggesting they join the movement. But, one can only achieve so much with letter writing.

I believe that the time has come to send a fact-finding mission from PAAZAB/APP to the north to find out what is going on and to spread the word of PAAZAB/APP face to face. With travel being the price it is this is going to need major funding; I feel strongly that we must embark on this action in the near future or we will be avoiding our responsibilities to the fast dwindling biodiversity of Africa.

I would like to thank the members of PAAZAB and in particular my APP Committee for their support and assistance over the past year. May I take this opportunity to remind all members that the APP program is a cooperative one which cannot succeed without input from as many members as possible.

*This report was submitted by John Spence, Chairman APP, Tygerberg Zoo.*

## Pan African Association of Zoological Gardens, Aquaria and Gardens

The Fifth Annual Conference of the Pan African Association of Zoological Gardens, Aquaria and Botanical Gardens (PAAZAB) was held in June this year at the Johannesburg Zoological Gardens, South Africa. The conference was attended by 46 delegates representing 29 institutions from eight countries. Attending the conference for the first time were representatives from Ghana, Namibia, Mozambique, and Zambia.

The PAAZAB's membership has grown steadily since its inception in 1990. Twenty-one institutions from ten African states (Cameroon, Ivory Coast, Madagascar, Malawi, Mozambique, Morocco, Namibia, South Africa, Zaire, and Zimbabwe) comprise PAAZAB's institutional members at present. Other African states that are represented through individual membership are Senegal, Tunisia, Algeria, Ghana, Zambia, and Egypt.

I wish to express our deep appreciation for the continued support provided by many American colleagues. Associate membership was granted to Fossil Rim Wildlife Center, which not only made a substantial donation to PAAZAB, but it also offered to sponsor the ISIS membership of the Tygerberg Zoological Preservation Trust.

The remarkable growth in the membership of the International Species Information System in Africa has not been without its problems. The membership of five institutions is now under review and may be suspended in the near future. The conference was also attended by Nate Flesness, executive director of ISIS, and colleagues took advantage of the opportunity to discuss with him the many problems with which they are faced. The lack of proper training, equipment, and financial assistance appear to predominate, and the PAAZAB intends to address these problems at grassroots level.

The fourth edition of the annual animal inventory was published. Twenty-seven institutions contributed to this publication. The fifth edition of our PAAZAB Bulletin was also published.

Thirty-three copies of the *World Zoo Conservation Strategy* have been distributed to zoological institutions throughout Africa. An executive summary with a press release was made available to 73 newspapers and the electronic media. Although the *Strategy* was well received throughout Africa, a number of articles appeared in local newspapers on international reports that portrayed the contents of the report in a negative light. Anti-zoo groups may try to use this report as grounds in support of their action plans against zoos. Clearly, the fate of the *Conservation Strategy* imposes an even greater responsibility on regional associations to get their houses in order.

Given the massive biodiversity of Africa, the competition for resources between wildlife and the exponentially-growing

human population and the need to link *ex situ* and *in situ* conservation efforts, there is a need to explore all avenues of potential benefit to protecting African wildlife. This is why PAAZAB, in cooperation with the CBSG, convened a two-day meeting on genome resource banking for Conservation in Africa.

The workshop was chaired by Dr. Paul Bartels, chairman of PAAZAB's Genome Working Group, and co-chaired by Dr. David Wildt, deputy chairman of the CBSG. A group of 48 scientists from five countries actively participated in the discussion. After plenary presentations describing current global philosophies on GRB and strategic action planning (as promoted by the CBSG), participants divided into four working groups. The working groups were responsible for developing a policy statement; identifying resources and facilities; creating species priorities, justification, action plans, and research; and ensuring that GRB programs protect the health and well-being of all free-living and captive-bred wildlife populations. The proceedings and recommendations of the workshop are in print and available for distribution.

The seven mammals for APP intervention are the African wild dog, the riverine rabbit, the suni, the cheetah, the Cape grysbok, the sable antelope, and the African wild cat. The Cape vulture, the Cape parrot, the southern ground hornbill, and the blue crane have been identified for the bird TAGs. The geometric tortoise, the sungazer, the Southern African rock python, the dwarf crocodile, the radiated tortoise, the Malagasy ground boa, the Angolan dwarf python and the Cape platanna have been identified for the reptile/ amphibian TAGs.

Regional studbooks for the blue crane, the southern ground hornbill, the Cape grysbok, and the sable antelope have been approved by PAAZAB. A procedural guide, an African Zoo directory and a procedural guide for species co-ordinators are being finalized.

Africa has again experienced a year of turmoil. The ongoing civil war in Rwanda and its effect on neighboring states is a cause of grave concern. Poverty, drought, and unrest in Malawi, Angola, Mozambique, Zaire, and other countries have left devastating scars on the environment, and, as a result, people do not list conservation anywhere among their main priorities.

The PAAZAB is a product of Africa and it should be equipped to face the challenging problems of this unique continent. Differences in culture, language, and socio-political standards will all call for a very special approach if the monumental tasks ahead are to be managed.

The first democratic elections to be held in South Africa and their miraculous outcome received international recognition. This means new hope for stability and growth in many parts of the continent. Only when these objectives have been achieved can the issue of conservation be successfully addressed.

I firmly believe that the PAAZAB, as a young and dynamic organization, will continue to play a leading role in developing a strategic conservation plan for Africa.

*This report was submitted by Willie Labuschagne, Director, National Zoological Gardens of South Africa.*

**CBSG/IUDZG Update...**

# Rhinoceros Global Captive Action Plan (GCAP) and Global Animal Survival Plan (GASP)

This update is the first since the report of the Rhino GCAP and GASP meeting at the 1993 CBSG Annual Conference in Antwerp. The update reflects a number of changes that have been generated as part of the interactive and iterative development of the GCAP and GASPs by the Regional Programs.

## Rhinoceros Populations

Estimates of rhino populations are presented in Table 1. The Australasian Region in particular has recommended a number of modifications. The previous terminology "wild" and "captive" has been changed to "intensively protected *in situ* (symbolized as IPZ) and "intensively managed population" (symbolized as IMP). This change reflects the fact that all surviving rhino populations are now under some kind of intensive treatment. The "captive" community is moving towards larger and more naturalistic conditions for rhino under their management and this trend is occurring both outside (*ex situ*) and inside countries of origin (*in situ*).

A time frame has now been added to population goals. This addition emphasizes the greater recognition of the need for more performance measurement as well as achievable goals in rhino

programs by the captive conservation community. Population target goals are therefore now presented for 7, 50, and 100 years into the future. The North American AZA SSP has also now adopted both shorter and longer term goals for its programs.

Numbers presented in the Intensively Protected *In Situ* Population (IPZ) represents the latest figures from the IUCN SSC African (May 1994 figures) and Asian (December 1993 figures) Rhino Specialist Groups.

## In Situ Conservation and Research Activities

The International Rhino Foundation (IRF) has proposed providing one-half of an estimated \$1,150,000 desired for conservation and research programs for all rhinos. The proposal is for IRF contributions to serve as matches or challenges to the other entities to generate the other half of the total. This total would be distributed through mutual agreement for projects which IRF and the other entities agree are priorities. More information on the specific projects the IRF is proposing as priorities will be provided after the IRF Board meeting.

*This report was submitted by Tom Foose, IRF Program Officer.*

Table 1. Rhinoceros populations intensively protected *in situ* (IPZ) and under intensive management (IMP) on both global and regional levels at current and target numbers.

Rhino Taxon	WORLD			AFRICA		ASIA		AUSTRALASIA		EUROPE		NO. AMERICA		C/S AMERICA	
	IPZ Now	IMP Now	IMP Target 7/50/100 Years	IMP Now	IMP Target 7/50/100 Years	IMP Now	IMP Target 7/50/100 Years	IMP Now	IMP Target 7/50/100 Years	IMP Now	IMP Target 7/50/100 Years	IMP Now	IMP Target 7/50/100 Years	IMP Now	IMP Target 7/50/100 Years
Eastern Black	470	165	200/240/240	5	10?	35	40/40/40	2	0	55	65*/100/100	69	90/90/90	6	?
Southern Black	1250	45	80/160/400	4	50	2?	0	6	20*/75/250	2	0	32	50/80/80	0	?
SW Black	600	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NW Black	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northern White	32	9	?	0	?	0	0	0	0	6	?	4	?	0	0
Southern White	6740	630+	515/525/500 (20 research)	24	0	150	150/?	14	45*/125/250	210	200/?	125	120/120/120 (20 research)	40	?
Indian/Nepalese	=1900	124	145/250/250	0	0	50	55/80/80	0	0	32	40*/80/80	42	50/90/90	1	?
Javan (Java)	<75	0	?	0	0	0	?	0	0	0	0	0	0	0	?
Javan (Vietnam)	<25	0	?	0	0	0	?	0	0	0	0	0	0	0	?
Mainland Sumatran	=100	8	12/40/100**	0	0	8	12/40/50	0	0	0	(50)*	0	0	0	?
Sumatran Sumatran	<300	11	12/40/100**	0	0	4	12/40/50	0	0	2	0	5	10/20*/50	0	0
Borneo Sumatran	<100	4	8/25/100**	0	0	4	8/25/50	0	(50)*	0	0	0	0	0	0
African Rhino	=9100	850	795/925/1140	35	60	187	140	16	65/200/500	266	220	230	290	46	?
Asian Rhino	=2400	147	177/355/550	0	0	66	230	0	(50)*	34	130	47	140	1	?
All Rhino Taxa	=11500	=1000	1000/1300/1700	33	60	253	277/300/400	16	65/200/500	300	305/300/300	277	320/400/430	47	?

\*The "+" number means that the indicated target includes the acquisition of this number of new founders which are thus included in the target total.  
 \*\*A desirable target if and when husbandry of this species can be mastered and sufficient founders for *ex situ* populations can be produced by captive propagation programs within the range states.

## Captive Conservation Community Assists Northern White Rhino

Sixteen institutions/organizations of the global captive conservation community in six countries on three continents have contributed to a project to assist the conservation program for northern white rhinoceros (*Ceratotherium simum cottoni*) in Garamba National Park, Zaire. The project is providing a desperately-needed 4-wheel drive vehicle to improve protection, management, and research activities in the Park.

Garamba contains the last verified population of northern white rhino. At last count, 32 (16.16) rhino inhabit the Park. This number represents an increase of 100% from the 16 that survived when the current intensive protection and management program that was initiated by IUCN, WWF, and Frankfurt Zoological Society in 1984. Another nine northern white rhino (4.5) are maintained in two zoological institutions: Dvur Kralove in the Czech republic and San Diego Wild Animal Park in the United States. The rhino in captivity have not been reproducing well. Intensive efforts are in progress at San Diego Wild Animal Park to evaluate and manipulate their 2.2 rhino to induce breeding.

The 16 institutions/organizations participating in the project are: Australia (Werrabee Zoological Park), Belgium (Antwerp Zoological Society), Netherlands (Safari Park, Beekse Bergen; Burger's Zoo and Safari, Arnhem; Noorder Dierenpark, Emmen), United Kingdom (Marwell Zoological Park), Canada (Calgary Zoo; Toronto Zoo), United States: (Columbus Zoological Park; Chicago [Brookfield] Zoo; Jacksonville Zoo; St. Louis Zoo; Virginia Zoological Society; Fossil Rim Wildlife Center through its Earth Promise Foundation; White Oak Conservation Center; The Wilds)

The project has been conducted under auspices of the Rhino Global Captive Action Plan (GCAP) and White Rhino Global

Animal Survival Plan (GASP) initially developed under IUCN/SSC CBSG. The Program Office of the International Rhino Foundation (IRF) has facilitated this project.

Columbus Zoo has provided the leadership for this project by donating an initial matching grant of half the funds needed. This donation continues an earlier major grant from Columbus through the IRF of US\$10,000 to augment support for guards in Garamba.

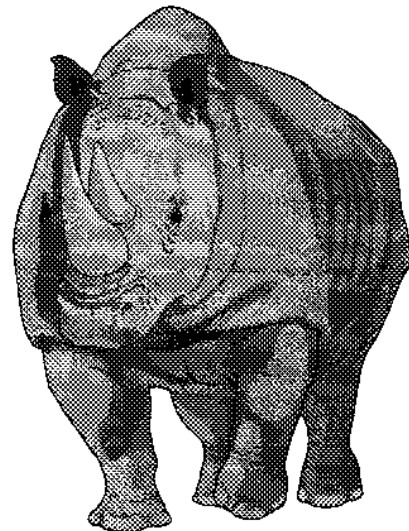
An additional partnership for this project has been developed with Care for the Wild, a non-government organization in the U.K. which has provided about 20% of the funds for this project. The Marwell Zoological Society facilitated the contact between Care for the Wild and the IRF for this partnership. The IRF is proposing to continue support for Garamba through a program whereby IRF will match further contributions from zoological institutions.

An important part of this continuing program will be continued participation in attempts to develop an improved strategy for conservation of the northern white rhino including the possibility of establishing a second free-ranging population. Toward this end, two strategy sessions were conducted earlier this year: one at IUCN SSC Headquarters in Switzerland and the other in Mombasa, Kenya in conjunction with the meeting of the IUCN/SSC African Rhino Specialist Group. Preliminary population and habitat viability analyses using VORTEX were conducted at the Mombasa meeting. An expanded meeting involving hopefully all major stakeholders in conservation of this subspecies is being proposed for January 1995 in Garamba.

*This report was submitted by T.J. Foose, IRF Program Officer.*

### Rhino GCAR Recommendations

1. Attempt to involve all institutions holding rhinos in *in-situ* rhino conservation.
2. Evaluate the effectiveness of recent rhino conservation efforts in which the conservation breeding community was involved.
3. Evaluate the black rhino subspeciation question and make a final evaluation for the African Rhino Specialist Group to approve.





## 1994 EEP Annual Report

For the first time in the history of EAZA, an EEP conference was held in conjunction with an EAZA annual general meeting. This reflects the importance of cooperative breeding programs within the European zoo community. By combining the EEP conference with EAZA's annual general meeting, more directors will hopefully be stimulated to attend the EEP conference to get a better understanding of the needs of cooperative zoo management.

The proceedings of the 10th EEP conference held in June 1993 at Salzburg, Austria and the reports of all EEP coordinators and TAGs were published by the EEP Executive Office in the 500-page EEP Yearbook 1992/1993 and mailed to all 350 EEP participating institutions in December 1993. Together with the Yearbook, the World Zoo Conservation Strategy was distributed, which was published jointly last year by IUDZG, the World Zoo Organization, and the CBSG. Additionally, a print-ready film of the EEP logo was mailed to all participating zoos to encourage them to use this logo throughout their zoos in educational displays, guidebooks, annual reports, etc. Using this logo is one of the means to inform the public about modern coordinated management of zoo collections and the contribution of zoos to conservation of species.

The EEP Yearbook is the most important updated source of information for all European zoos regarding the European breeding programs and collection planning process. It contains annual reports of the EEP Executive Office and the EEP Committee.

The EEP Executive Office is under the leadership of Dr. Koen Brouwer since 1 November 1993. He succeeded Dr. Bert de Boer, who now works for Apenheul in Apeldoorn.

The EEP Committee met twice during the last year, in Cologne Zoo in October 1993 and in Alphen a/d Rijn in June 1994. Twelve new EEPs were approved by EAZA Council during the same period for the following species. The total number of EEPs is now 103. The new EEPs are:

- Black-footed penguin (Amsterdam)
- Andean condor (Welsh Mountain Zoo)
- Edward's pheasant (Parc Zoologique Cleres)
- Buffon's macaw (Walsrode)
- Red-tailed amazon (Dresden)
- Blue throated macaw (Loro Park, Tenerife)
- Red-browed amazon (Loro Park, Tenerife)
- Mongoose lemur (London Zoo)
- Fossa (Duisburg)
- Wolverine (Nordens Ark)
- White-faced saki (Bristol)
- Iberian wolf (Barcelona)

In addition to the above mentioned EEPs, these new European studbooks have also been approved:

- Ring-tailed lemur (London)
- Hamlyn's guenon (Edinburgh)
- l'Hoest guenon (Edinburgh)
- Allen's swamps monkey (Paris)

Mangabeys (Paris)

Siamang (London)

Furthermore three new TAGs were initiated in 1994:

Pigeon and Dove TAG (Bristol)

Passeriformes Tag (Jersey/Cologne)

Caprinae TAG (Paris/Tallinn)

The total number of EEPs and European studbooks now exceeds 100. This is quite an achievement but the number of species needing coordinated breeding management is much higher. If we want to maintain collections with a high variety of species in the future and to contribute to the conservation of endangered species, we must work on this in the framework of the World Zoo Conservation Strategy.

Another new development in the EEP region in the initiation of an EEP/EAZA Available/Wanted list which is now produced by the EEP Executive Office on a regular basis. This EEP Available/Wanted list, once accepted by the zoo community in a proper way, will replace institutional offer lists and the involvement of animal dealers. Regardless of the fact if an animal is subject to an EEP or not, we have responsibility for each animal given to an animal dealer according to the EAZA standards for accommodation and care of animals in zoos. In response to severe criticism recently raised in the media in Germany but also in many other countries, EAZA has also established a working group to develop guidelines for EAZA members on surplus and dealer/broker involvement.

*This report was submitted by Dieter Jauch, Wilhelma Zoological Garden.*

## Annual Report on International Studbooks and Registers

This annual survey of International Studbooks and Registers, for August 1993 to August 1994, is the 11th annual survey prepared for the CBSG and the IUDZG. It updates the previous survey produced for the last annual meetings of CBSG and IUDZG held in Antwerp in September 1993. Since that survey there have been three studbooks endorsed by IUDZG and IUCN/SSC:

**Oriental White Stork** *Ciconia boyciana*

Studbook Keeper: Tolu Hasegawa

Tama Zoological Park

7-1-1 Hodokubo Hino-shi

Tokyo 191 Japan

**Potto** *Perodicticus potto*

Studbook Keeper: Cheryl A. Frederick

African Tropical Forest

Franklin Park Zoo

Boston, MA 02176 USA

**Studbooks...****Vietnamese Sika** *Cervus nippon pseudaxis*

Studbook Keeper: Klaus-Dieter Rudloff  
Tierpark Berlin-Friedrichsfelde GmbH  
Am Tierpark 125  
D-10307 Berlin, Germany

The Prosimian Taxon Advisory Group (AZA) decided that because of the low numbers in captivity and the relatively low birth and survival rates in Pottos in captivity that the species should not be managed on a subspecies level at this time. This was agreed upon in the endorsement of the IUCN/SSC and IUDZG.

As of August 1993, there were 140 international studbooks and two registers. This is after the deletion of two studbooks; (takin and brown hyaena) and three registers (white-eared pheasant, Pere David's deer, and wood bison) as agreed at the CBSG and IUDZG meetings in Antwerp, September 1993.

The following changes of address and changes of studbook keepers:

*Puerto Rican crested toad*: transferred to Ann Day, St. Louis Zoological Park, Forest Park, St. Louis, MO 63110, USA.

*Betong*: transferred to Priv Doz Dr. U. Ganslosser, Institut für Zoologie Universität Erlangen-Nürnberg, Staudtstr. 5, 91058 Erlangen, Germany.

*Golden-headed lion tamarin*: transferred to Mrs. Helga De Bois, Royal Zoological Society of Antwerp, Koningin Astridplein 26, B-2018 Antwerp, Belgium.

*Drill*: Dr. Cathy Cox, Research Director, The Los Angeles Zoo, 5333 ZOO Drive, Los Angeles, CA 90027 USA, to become co-studbook keeper with Dr. Michael Boer, Zoologischer Garten Hannover, D-30175 Hannover 1, Adenauerallee 3, Germany.

*Pileated gibbon and Vicugna*: Dr. Christian Schmidt the Studbook Keeper has moved to become Director, Zoologischer Garten der Stadt Frankfurt am Main, Alfred-Brehm-Platz 16, D-60316 Frankfurt am Main 1, Germany.

*White rhinoceros and Gaur*: transferred to Dr. Andreas Ochs, Curator of Mammals II, Zoologischer Garten und Aquarium Berlin, Hardenbergplatz 8, D-10787 Berlin 30, Germany.

*Black rhinoceros*: transferred to Dr. Reinhard Goltzenboth, Veterinarian, Zoologischer Garten und Aquarium Berlin, Hardenbergplatz 8, D-10787 Berlin 30, Germany.

*Barasingha*: transferred to Katherine I. Fulkerson, c/o Mammals Department, San Diego Wild Animal Park, 15500 San Pasqual Valley Road, Escondido, CA 92027-9614, USA.

Awaiting confirmation are: the transfer of moloch gibbon studbook from Beatrix Rau (Munich Zoo) to Reg Gates (Perth Zoo); the transfer of cotton-top tamarin from Suzette Tardif (University of Tennessee) to Dr. William Langbauer Jr. (Pittsburgh); and the proposed international studbook for caracal lynx, *Lynx caracal*: studbook keeper Diane Versteeg (The Living Desert).

Most studbooks are being published within the three-year time limitation and regular updates are being prepared and made available. A number of studbooks listed in the last annual survey

as being overdue have since been published or are soon to be published. Of that list, those published include: douc langur, Eld's deer, dorcas gazelle, and barbary sheep subspecies *sahariensis*; those still expected include: Siberian crane, drill, polar bear, clouded leopard, mhorr gazelle. All of these have been delayed, but should be published in 1994.

There are two studbooks where there is a need to obtain a new studbook keeper: Waldrapp (red-cheeked ibis), *Geronticus eremita*, and golden conure, *Aratinga guarouba*.

At the last meeting of CBSG and IUDZG, I recommended that future approval for transfers and changes of keepers not be sought from the two international bodies, IUDZG and IUCN/SSC, unless there was a potential problem which had been brought to the attention of the international coordinator. At present, obtaining approval can take two to three months and this is after the national or regional association has given its approval. After discussion with various people, I would now like to propose that in the future the official approval of the national or regional association must be obtained and that there must be a signed agreement to the transfer from the studbook keeper and a signed guarantee of commitment from the new keeper together with signed institutional support. These should be sent to the international coordinator for endorsement and for subsequent listing of the changes. In the vast majority of cases, there is no problem, but as the number of studbooks increases so does the number of proposed transfers and changes of keepership increase, and we should try to make the process as quick and painless as possible.

*This report was submitted by Peter J. S. Olney, International Studbook Coordinator.*

## International Species Information System (ISIS) Report

The ISIS is now in its 20th year. From the initial 55 zoos in four countries, the network has grown to 482 zoos in 54 countries on six continents. Fifty-six new members have joined in the last 12 months. This encouraging growth is partly offset by the suspension of membership of 30 facilities, who have not met the membership standards set by the ISIS Board of Trustees (data and fees current to within 12 months). We would be happy to assist any of these 30, or any other facility, in becoming a member in good standing.

### Services

ISIS offers two broad kinds of services:

1. The central database now holds information on 213,000 living animals of 8,000 taxa, along with 600,000 of their ances-

tors. From this, we produce reports on individual specimens, species, genera or families, and the well-known ISIS Abstracts which each cover one Class. We have a new initiative to move this resource beyond the ISIS office to regional and national zoo organization offices by use of CD-ROM technology. The ASMP office in Sydney, Australia, already has a copy of the ISIS database to serve Australasian needs.

2. Personal computer software is available for in-house collection management. There are 460 facilities now using our ARKS software for their basic collection records; 180 are actively using MedARKS for veterinary medical records and management and 260 are using SPARKS for studbook and species management programs. The long-awaited new version of ARKS is nearing completion, with 20 test sites and five facilities now using it for actual record-keeping in this "pre-release" version.

### New Directions

For the first time, ISIS provided 400 known studbook keepers with a "studbook keeper update report" this last February. This new report lists information ISIS has for births, moves, and deaths which were reported to us during the last year. We plan to produce this twice each year, and would welcome comments and suggestions on how to better support studbook keepers.

We are studying other ways to better support the studbook system, and we have just received a grant to further develop linkages between our SPARKS studbook software and the ISIS database. We are more active on the Internet for e-mail, and we are studying other possible services that might be offered through this system.

For the first 20 years, we have focused on quantity. Now that the network has reached a size where it represents a very real resource, there is a new emphasis on quality. Several independent efforts are developing to assess and increase the quality of the information available. This will likely emerge as a theme activity for the next few years.

### Funding

The ISIS main programs are now almost 75% supported by member fees; the rest coming from grants. Our fees are rising about 15% for 1995 to offset four years of inflation and also to raise core support to cover at least 75% of our budget. Thirty percent of our budget is now invested in development of software for in-house use by members; 15% is invested in continuing development of our central database services; and 55% covers our basic operating costs for providing routine membership services.

The ISIS is now an international non-governmental member, in its own right, of IUCN, the World Conservation Union. We are evaluating innovative ideas for approaches to computer and software companies for increased resources to deliver improved services.

*This report was submitted by Nate Flesness, ISIS.*

## Annual Report on Genome Resource Banking

Since 1991, the Conservation Breeding Specialist Group (CBSG) has been exploring both the potential and the methods for developing and implementing the concept of genome resource banks. A genome resource bank (or GRB) is defined as the organized collection, storage, and use of animal biomaterials including spermatozoa, oocytes, embryos, blood products, tissue, and DNA. When used with powerful biotechniques (like artificial insemination, embryo transfer, DNA analysis, and a host of other techniques), these repositories have the potential to enhance movement of genetic material (to maximize genetic diversity), reduce the space needed for captive propagation, 'insure' rare species/populations from catastrophes, and provide biomaterials for systematic and disease forensics.

The key to a successful GRB is that the program must be developed in a systematic fashion while having a conservation impact. The idea of 'frozen repositories' for animal conservation has been discussed for decades; however, only recently and under CBSG leadership have methods evolved for bringing the concept of GRBs closer to reality. Included in this progress is the development of GRB Action Plans, including explicit guidelines and producing a 'prototype' (example) plan for the tiger.

Two major achievements occurred in the past year. First, a workshop was held in March 1994 on Population Biology Aspects of Genome Resource Banking. The purpose was to deal with a number of population biology questions relevant to developing effective banks. Among these, the most important was to define specific criteria for selecting donors to be incorporated to achieve genetic management objectives. This was achieved in a lively and detailed discussion by 15 participants representing four countries. Workshop results (available in document form from the CBSG office) demonstrated even more clearly the profound advantages of GRBs for conservation management.

A second workshop was held in Pretoria (Republic of South Africa) in June 1994 for the purpose of beginning to establish a GRB program for this region. Plenary sessions, which focused on the many advantages of biomaterial storage and use, were complimented by working groups that produced a regional policy statement on GRBs while identifying high priority needs and a specific regional plan. The overall result was another inclusive document for identifying specific factors for initiating an effective GRB. However, in this case, this was the first document that centered on an integrated plan for a region, especially one so rich in bio- and genetic diversity. This report also is available from the CBSG office.

The GRB Working Group at the Annual Meeting was represented by four countries and focused upon three issues. First, there is substantial interest in continuing to extend the network of people interested in the concept. There was general

*Banking...*

consensus that the regional GRB workshop idea was extremely valuable in promoting the advantages and seeding local efforts. Preliminary plans were put into place to convene at least one additional regional workshop in the coming year, likely in Australasia. A second issue involved developing an information guide/packet containing relevant manuscripts, CBSG products (i.e., results from the Population Biology Workshop), step-wise biotechniques, and the Tiger Action Plan prototype that would be useful to conveners of regional workshops or to those preparing additional action planning documents. The third issue involved updating and resubmitting an 'IUCN Policy Statement on Genome Resource Banking'. A draft document was first prepared in 1991, but not acted upon by the IUCN. Given the substantial progress made in the development of organized GRBs within global and regional communities, the working group deemed it an appropriate time to revise and resubmit the policy statement. The final document, presented below, was presented to the CBSG Annual Meeting participants and approved by general consensus. The CBSG Chairman will submit this statement to the IUCN via the Species Survival Commission.

## **Proposed IUCN Resolution Statement on... Animal Genome 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) as well as supporting programs that manage populations, individuals, gametes, and/or embryos outside of natural environments (*ex situ* conservation).

The IUCN recognizes that, although habitat protection is the most desirable, first approach for conserving biological diversity, supportive intensive management programs are essential in many cases. 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 intensive conservation efforts 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, oocytes, and embryos. Germ plasm banks (more broadly defined as genome resource 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. Ancillary conservation benefits include banks for basic and applied research including repositories of serum, DNA and cultured cell lines from germ plasm donors that permit studies on disease status, detection of microbial antibodies, pedigree determination, taxonomic status, geographical differentiation of populations, and cellular physiology.

The IUCN also recognizes that the establishment of genome resource banks must be matched by developing strategies for use as a genuine and practical conservation asset for supporting natural breeding. Furthermore, genome resource banks should follow specific, scientifically-developed guidelines consistent with an international standard, thus ensuring their use as a meaningful, practical, ethical, and cost-effective conservation tool.

The Conservation Breeding Specialist Group of the IUCN's Species Survival Commission is charged with exploring novel approaches to assisting in the conservation of biodiversity and genetic diversity. Since 1991, the Conservation Breeding Specialist Group has been developing and refining strategies for the practical implementation of genome resource banks. These activities have included: 1) publication of scientific manuscripts on the utility of this new conservation approach; 2) development of a comprehensive Action Planning process (with explicit guidelines) to ensure that all such repository programs have conservation application; and 3) identification and coordination of a global network of people and resources dedicated to the systematic formation of genome resource banks.

### **Recommendations**

The IUCN regards the development of genome resource banks as a valuable component of integrated conservation programs. Therefore, the IUCN recommends that the Conservation Breeding Specialist Group continue to pursue developing the framework for international coordination of this type of program based upon agreements to cooperatively manage species for demographic and genetic diversity.

To achieve this recommendation:

1. Genome resource banking programs, where appropriate, should be incorporated directly into the framework of other conservation action strategies including conservation assessment and management plans (CAMP process), population and habitat viability assessments (PHVA process), global/regional collection planning, and recovery plans for restoring species to natural situations.

2. Genome resource banks should be developed only in the context of systematic, written, and detailed Action Plans, thereby ensuring that there is a defined conservation goal associated with the collection, storage, and use of animal biomaterials to support natural breeding. The development of an integrated plan with clear conservation goals is the single most important consideration prior to initiating banking activities.

3. The Conservation Breeding Specialist Group, when requested, should assist taxon Specialist Groups, propagation groups for species, regional conservation programs, and others in developing genome resource banking strategies and specific Action Plans. The development of the Action Plan resides with those groups with specific responsibilities for *in situ* and *ex situ* conservation of specific taxa, species, and populations. The CBSG will support these activities by interlinking global/regional groups interested in genome resource banking, providing specific information on banking strategies, and by integrating information on: a) reproductive and genetic histories of *ex situ* and *in situ* populations, b) efficiency of reproductive/genetic technologies, c) approaches for achieving genetic management goals, d) types of biomaterials requiring storage, e) appropriate protocols for banking and using biomaterials, f) ethical issues related to biomaterials ownership/distribution, g) concerns about disease and regulation, and h) areas requiring further research.

4. A globally-standardized, record-keeping database should be developed for cataloging, pooling, and managing data and transfers of banked materials. It is highly desirable that these biomaterials are linked to individually-identifiable source animals to ensure meeting the objective of assisting in managing genetic diversity.

*The previous two reports were submitted by David Wildt, National Zoological Park and Deputy Chairman of CBSG.*

## AZA Conservation and Science Office Report

### Current Status of AZA Conservation Programs

Studbooks: 216, covering 267 taxa  
 Species Survival Plans (SSPs): 67, covering 113 species  
 Taxon Advisory Groups (TAGs): 40  
 Fauna Interest Groups (FIGs): 7  
 Scientific Advisory Groups (SAGs): 8

### 1992-1993 Annual Report on Conservation and Science

This edition includes reports of all AZA conservation committees. AZA institutions participated in more than 1,100 conservation/research projects and published nearly 500 conservation/research publications last year.

### SSP Mission Statement

M. Hutchins prepared a draft mission statement for the AZA's Species Survival Plan (SSP) Program and submitted it to the AZA Wildlife Conservation and Management Committee (WCMC) for consideration. After considerable debate, a consensus was reached and approved by the AZA Board of Directors at its midyear meeting in Oklahoma City on 3-5 March 1994:

"The mission of the American Zoo and Aquarium

Association's (AZA's) Species Survival Plan (SSP) Program is to help ensure the survival of selected wildlife species. The mission will be implemented using a combination of the following strategies:

- Organize scientifically-managed captive breeding programs for selected wildlife as a hedge against extinction.
- Cooperate with other institutions and agencies to ensure integrated conservation strategies.
- Increase public awareness of wildlife conservation issues.
- Conduct basic and applied research to contribute to our knowledge of various species.
- Train wildlife and zoo professionals.
- Develop and test various technologies relevant to field conservation.
- Reintroduce captive-bred wildlife into restored or secure habitat as appropriate and necessary.

### Atlanta Bioethics Conference Proceedings

Proceedings of the NSF-funded 1992 Bioethics Conference held in Atlanta, Georgia will now be published by the Smithsonian Institution University Press. Editors Michael Hutchins (AZA), Bryan Norton (Georgia Institute of Technology), Terry Maple (Zoo Atlanta) and Elizabeth Stevens (Zoo Atlanta) have completed work on *Ethics on the Ark: Zoos, Animal Welfare and Wildlife Conservation* and it is scheduled for distribution in the Spring of 1995. The book explores the evolving conservation role of zoos, as well as various ethical implications related to animal welfare.

### IUDZG Committee on Inter-regional Conservation Coordination

The AZA was invited by IUDZG President, Dr. Gunther Nogge, to participate in the new Committee on Inter-regional Conservation Coordination (CIRCC; formerly the IUCN/SSC CBSG Conservation Coordinator's Committee). The Committee consists of the conservation directors/coordinators of the world's established regional/national captive breeding/conservation programs and it is likely to become a significant forum for the global coordination of zoo-based conservation programs. The AZA approved the Conservation and Science Office's participation, and work for CIRCC has already been initiated. The AZA Conservation and Science Office is producing an informal "newsletter" on a biweekly basis and distributing it to the committee. The EEP Executive Office is maintaining a comprehensive database of global programs, including studbooks and SSPs or their equivalents in other regions.

### Giant Panda SSP/Conservation Action Plan

The Conservation and Science Office staff continue to assist with development of the AZA Giant Panda SSP/Conservation Action Plan. R. Wiese attended the Chengdu Panda Symposium in September 1993 where he met with the Chinese Giant Panda Technical Committee and interacted with the Chinese studbook keeper. The Conservation and Science Office staff assisted in the formulation of the SSP planning document and recommenda-

AZA...

tions based on an analysis of studbook data. Wiese traveled to China with S. Butler, D. Meritt, and J. Harkness in January 1994 to meet with Chinese officials and work towards the development of a coordinated breeding plan. The AZA also hosted Mr. Fan (Chief MOF biologist) and Mr. Zhao (MOC studbook keeper) in February when they completed the SSP Coordinators Course at the AZA Conservation Academy.

### **AZA Conservation Academy**

The AZA Conservation Academy successfully completed its fourth year with great reviews. In addition to serving as instructors, M. Hutchins, R. Wiese, and K. Willis have worked closely with the Board of Regents and AZA Conservation Academy to review and improve the Science of Animal Management, SSP Coordination, and Studbook Management courses.

### **Australasian Species Management Program**

AZA Conservation Biologist, K. Willis, served as an instructor for the ASMP training course held in Sydney, New South Wales, Australia. Mr. Willis taught ASMP coordinators in the use of SPARKS software and in the principles of genetic and demographic management. Expenses were paid by the Australasian Regional Association of Zoological Parks and Aquariums. Willis' lectures have been converted into a training manual for use in the Australasian region. Because the ASMP will be managing populations much the same as the SSP, future cooperation between the SSP and ASMP should be easier.

### **Changes in Contraceptive Implant Program**

Several changes have been made in the Contraceptive Implant Program coordinated by Dr. Ed Plotka of the Marshfield Medical Research Foundation. Institutions using this service will now be required to pay a nominal fee for these services and to provide data for a study sanctioned by the U.S. Food and Drug Administration (FDA). It is hoped that the program can both become self-sustaining and meet FDA requirements. A total of \$30,432 has been allocated to the program through the AZA Conservation Endowment Fund since 1992. No funds have been removed by AZA for administrative costs. Funds continue to be managed by AZA for one year and, after that time, responsibilities for fund management will be transferred to the AZA Contraception Advisory Group (CAG), chaired by C. Asa (St. Louis Zoological Park). The monies would be used to support the contraceptive implant program and other CAG projects. Funds would be managed according to board-approved fund guidelines.

### **Conference on Zoos and Animal Protection**

M. Hutchins participated in a workshop on zoos and animal protection organized by A. Rowan (Director, Tufts University Veterinary School, Program on Animals and Public Policy), funded by the Howard Gilman Foundation, and held at White Oak Conservation Center in Yulee, Florida from 22-24 April

1994. The workshop was a follow-up to the NSF-funded 1992 Atlanta Bioethics Conference co-organized by the Georgia Institute of Technology, AZA, and Zoo Atlanta. Several representatives of the animal protection and zoo communities met to discuss issues related to wildlife conservation and the care and maintenance of captive animals. M. Hutchins gave the plenary address, "What do 'wild' and 'captive' mean for large herbivores and predators in the 21st century". The proceedings, along with a text of the discussions, will be published by Tufts University.

### **Memorandum of Understanding**

The AZA Freshwater Fish Advisory Group has negotiated a Memorandum of Understanding (MOU) with the U.S. Departments of the Interior, Agriculture, and Commerce and various relevant agencies (Fish and Wildlife Service, National Parks Service, Bureau of Land Management, National Marine Fisheries Service and Forest Service). The MOU arose from a meeting organized by the AZA Conservation and Science Office in cooperation with the AZA Freshwater Fish Advisory Group. The purpose of the MOU would be to establish a general framework for cooperation between AZA and relevant federal agencies.

### **Field Conservation Resource Guide**

The AZA Field Conservation Committee has identified development of an *AZA Field Conservation Resource Guide* as a priority. The guide is intended to facilitate institutional participation in field conservation initiatives. It will include descriptions of various options by which member zoos and aquariums can become involved (e.g., adopt-a-park, support of field research, in-country education, ecotourism, fund-raising, etc.), as well as a frank discussion of the costs and benefits of each. It will also include a listing of relevant sources of information and potential partners outside the zoo community. The introduction will include arguments and rationale for involvement of modern zoos and aquariums in field conservation, both domestically and overseas.

### **Bali Barat Adopt-A-Park Program**

The AZA Bali Mynah Reintroduction Project has determined it would be more effective if the AZA were to take a more holistic approach. Such an approach would focus not only on the bird but also on protection of Bali Barat National Park. A proposal is being drafted that will describe the details of such a program for consideration by Indonesia's PHPA. It is hoped that several AZA institutions will make a financial commitment to the project. Hopefully this holistic initiative will act as a model for other zoo-based field conservation programs.

### **Five-year Action Plans**

All AZA conservation and science committees (SSPs, TAGs, FIGs and Scientific Advisory Groups) have been asked to develop five-year action plans. The plans are to describe and justify up to six priority projects and budgetary requirements for implementation. The AZA Development Office will work with

committee chairs to seek additional sources of funding. This should provide a powerful incentive for committees to become more organized and action-oriented in their conservation, educational, and scientific activities.

### Species Survival Plans: Strategies for Wildlife Conservation

This is the title of a new AZA publication. The 64-page account of the first 12 years of the SSP details the philosophy and future direction of the AZA Conservation Program. Copies can be obtained from the AZA Membership Services Office in Wheeling, West Virginia.

*This report was submitted by Dr. Michael Hutchins, Director; Dr. Robert J. Wiese, Assistant Director; Kevin Willis, Conservation Biologist; and Julia Bowdoin, Program Assistant.*

## Sustainable Utilization

A working group met on 25 August 1994 and they did an initial evaluation of the issues and themes as they were perceived at this early point. It was quickly agreed that the issue was overwhelming and included most of human relationships with the natural world and many issues of values and economics. A definition was sought and the one developed for the moment was:

*Sustainable Utilization is the use of wild animals in such a way that the animal population, and the ecosystem of which it is a part, would continue indefinitely, along with the use.*

Domestic animal issues were identified as beyond the present range of interest of the group. The many topics which underlie this issue were identified and organized. It was agreed to next assemble and learn more of the published sources on this very broad topic. Nate Flesness at ISIS will act as a reference assembly point, and he asks that useful sources be sent to him. The group found the following themes:

- Scale of Use
  - Area of impact
- Style of Use
  - Tradition of Use
- Purpose
  - Food
  - Materials
- Consumptive/Non-consumptive
- Management Intensity (ranging from wild ecology to farmed domestics)
- Market Issues
  - Sustain
    - Sustain at maximum level
    - Yield
  - Create
  - Saturate
  - Eliminate
    - Educate about use (folk medicine, especially)

- Efficacy
- Placebo Effect
- Slow process
- Replace by substitution
- Equitable Use
  - Current
  - Generational
- Ethical Use
  - Whose ethics?
  - Which values?
- Human Population Dynamics Impact on Use
- Monitoring/Assessing Use
  - <30% of area modified
  - <50% of *r* used
  - Population numbers
  - Gene Diversity
  - Microfauna biodiversity
  - Megafaunal biodiversity
  - What philosophy
- Property Rights
  - Native
  - National
  - Domestic
  - Location
  - Genes
  - Managed Access
- Speciesism
- Role of Conservation Breeding Institutions
  - Backup populations
  - Education
  - Research
  - Management Technique Development
  - Utilizers
    - In situ* programs aiming at sustainable utilization
- Output Needs
  - Measure/assess single programs
  - Assess sustainable utilization as a conservation strategy
- Product Needs
  - Guidance for *in situ* programs
  - Guidance on sustainable utilization as a conservation strategy
  - Guidance for communication and education programs
  - Guidance for "informational entertainment" programs
  - Understanding
  - Developing consistent position on conflicting issues

*This report was submitted by Nate Flesness, ISIS*



## CBSG Schedule - 1995-96

Following is a *tentative* schedule of events that the CBSG staff will be attending. This schedule is presented for those wishing to meet with the staff at opportune times and places. Personnel abbreviations are: (S) Ulysses Seal, (E) Susie Ellis, (B) Onnie Byers, (M) Phil Miller.

### May 1995

- 8 - 11 Cologne: CBSG, GCCN, ISIS Board Meetings (S)
- 12 - 15 Cologne: IUDZG Strategic Plan Mtg (S)
- 11 - 16 Chicago, IL, USA: SSC Steering Commit.(E,B,M)

### June 1995

- 5 - 8 Costa Rica: Saimiri PHVA (Manual Antonio Park)(M,S)
- 10 - 13 Ft. Collins, CO, USA: SPMAG Mtg (M)
- 23 - 29 Poland: European Bison PHVA (S,M)
- 30 - 31 Poland: EEP Annu. Mtg & CBSG Regional; EAZA AGM (S,M)

### July 1995

- 3 - 16 India: Barasingha PHVA & PHVA Training Workshop (S,Ballou)
- 13 - 16 Columbus, OH, USA: Committing to Conser. (E)
- 17 - 20 Thailand: Tiger PHVA (S,B,M,Tilson)
- 21 - 24 Thailand: Asian Cattle CAMP (B,S,M)
- 26 - 29 Thailand: Storks, Spoonbills & Ibises CAMP (B,S,M)
- 28 - 29 Colorado, USA: Mexican wolf Captive Mgmt Commit.(M)

### August 1995

- 1 - 14 vacation: (S)
- 5 - 11 Paraguay: Neotropical Ornithological Congress (E)
- 21 - 28 Brazil: Muriqui PHVA & Atlantic Forest Primates CAMP (M,S)

### September 1995

- 3 - 9 Colombia: Raptor CAMP; Mt. Tapir PHVA (E,M,S)
- 11 - 14 Seattle, WA, USA: Hawaiian Monk Seal PHVA (E,S)
- 15 - 19 Seattle, WA, USA: AZA Annual Conference (S,E)
- 22 - 27 Canary Islands?: Regional CAMP (E,S,B)
- 28 Dublin: GCN & CBSG Steering Committ. Mtgs (E,B,S,M)
- 29 - 1 Dublin: CBSG Annual Meeting (B,S,E,M)

### October 1995

- 2 - 5 Dublin: IUDZG Annual Meeting (S,E,B)
- 9 - 13 Taipei: Clouded leopard PHVA (S,M,B)
- 16 - 20 Taipei: SEAZA (S,B)
- 26 - 30 China: CAZG (S,B)
- 18 - 20 Niort, France: Equid Metapopulation Dynamics (E,M)

### November 1995

- 2 - 3 Moscow, Russia: Tiger mtg (S)
- 13 - 17 Bauquisimeto, Venezuela: ALPZA & Felid CAMP or Orinoco Crocodile PHVA (S,E)
- 20 - 23 Sarawak, Maylasia: Conservation Biology (S)
- 27 - D8 Indonesia: Sea turtle PHVA; Komodo dragon

## CBSG Office Notes...

### CBSG News Update

The most recent issue of CBSG News previously distributed was the May 1994 issue, volume 5, number 1, which was mailed August 1994. It was a limited printing for CBSG donors, members, and CBSG News subscribers only. Volume 5, numbers 2 and 3, reporting on the 1994 Sao Paulo Annual CBSG Meeting, are also being distributed on a limited basis. We apologize for any confusion. We continue to seek sponsorship for the CBSG News so we can continue the global distribution to the more than 7,000 interested recipients.

### CBSG News Available on INTERNET

CONSLINK is a free electronic biological conservation conference and bulletin board service established by The Smithsonian Institution, Washington, D.C., USA. The CBSG News (in addition to other conservation newsletters) is available on the CONSLINK bulletin board by sending a regular e-mail message to [listserv@sivm.bitnet](mailto:listserv@sivm.bitnet). Then type the command, **INDEX CONSLINK** to receive a list of the files on the CONSLINK bulletin board. Type **GET CONSLINK CBSG-1** or **GET CONSLINK CBSG-2** to get CBSG News from the CONSLINK bulletin board. Type **AFD ADD CONSLINK CBSG-1** to automatically receive the CBSG News once it is updated. To cancel an automatic file distribution, type **AFD DEL CONSLINK CBSG-1**. You do not need to have subscribed to CONSLINK to request and receive any of these files. Contact your INTERNET provider or Michael Stuewe, Conservation Center, Smithsonian Institution, Front Royal, VA 22630 USA, telephone: 1-703-635-6542, e-mail: [nzpemool@sivm.si.edu](mailto:nzpemool@sivm.si.edu).

### CBSG Membership

Specialist Group membership is for a three-year term and it is at the discretion of the chairman; memberships expired 31 December 1993. At the beginning of the 1994, Dr. Ulysses (Ul)ie S. Seal was re-appointed the Chairman of the Conservation Breeding Specialist Group for the 1994-1996 triennium by Dr. George Rabb, IUCN Species Survival Commission (SSC) Chairman. Ulie, in turn, re-invited the 650 CBSG members to serve for the new triennium. We are requesting your help in following up the invitations. Membership is considered official when you return the membership form that was included in your CBSG invitation packet to the SSC headquarters in Gland. We requested that you also copy the CBSG office on the form, so we could have a current CBSG membership database. If you did not return the membership form, please do so now, for you will then receive the SSC membership benefits of receiving Species, in addition to being considered an official member of CBSG. If you need a membership form or if you did not receive a CBSG invitation packet and were a CBSG member in the previous triennium, please inform the CBSG office that you did not receive your packet. Thank you.



# The International Zoo Yearbook

The Yearbook serves as an international forum for the exchange of information amongst zoos. For zoologists, veterinarians, educators, and anyone concerned with the care, conservation, biology and behavior of wild animals, it is an indispensable reference and source book of much data unobtainable elsewhere. The Yearbook is comprised of a selection of papers which relate to a special subject, a section of papers on new developments in the zoo world, and a reference section which includes annually-updated lists of vertebrate species bred in captivity, a census of rare animals in captivity, and lists of international studbooks and world registers; plus, in even-numbered editions, an international directory of zoos and aquaria.

*"...in these days of ever-increasing international cooperation between zoos - a process of which the Yearbook is the most obvious symbol - the value of such a reference source can hardly be exaggerated."* International Zoo News

Special topics in recent volumes:

**Volume 28, Reptiles and Amphibians** \$97.00 hb \$86.00 sb. The 40 papers contributed by some of the world's leading herpetologists offer a wide view of the latest developments in herpetological conservation activities now being undertaken by zoos and zoological institutions world-wide.

**Volume 29, Horticulture in Zoos** \$97.00 hb \$86.00 sb. The papers in this section illustrate zoo managements' increasing concern with educating the public on the importance of conserving total habitats as it is clear that zoo exhibits must demonstrate not only the role of the animals in the environment but the integration of plants and animals as well.

**Volume 30, Invertebrates** \$104.00 hb \$90.00 sb. Although they represent over 95% of animal species, "animals without backbones" are neglected and misunderstood by the public at large. The 21 articles in this section argue impressively for the inclusion of invertebrates in zoo exhibits and educational and conservation projects.

**Volume 31, Australasian Fauna** \$104.00 hb \$90.00 sb. Throughout the world, the unique fauna of Australasia has enduring fascination. The 22 articles in this section give an overall view of the action being taken by the zoos of Australia and New Zealand to protect threatened species and to educate the people about the importance of their natural heritage.

**Volume 32, Ungulates** \$108.00 hb (available only in hardback). The 24 articles cover two orders of some of the most popular zoo animals as well as some of the most spectacular and endangered species. Because of their threatened status, some of these species were among the first to benefit from intensive coordinated breeding and reintroduction programs.

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# Conservation Breeding Specialist Group

Species Survival Commission, IUCN - The World Conservation Union  
U.S. Seal, CBSG Chairman

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### CONSERVATION ASSESSMENT & MANAGEMENT PLANS (CAMPs)

#### Reference Material:

- \_\_\_\_\_ CAMP Core Material Packet (English) \$5.00
- \_\_\_\_\_ CAMP Core Material Packet (Spanish) \$5.00
- \_\_\_\_\_ CAMP Summary Document (Vol. 1)
- \_\_\_\_\_ CAMP & GCAP Summary Document (Vol. 2)
- \_\_\_\_\_ CAMP Summary Document (Vol. 3)

#### Reports:

- \_\_\_\_\_ Antelope CAMP Draft IV
- \_\_\_\_\_ Canids, Hyena & Aardwolf CAMP
- \_\_\_\_\_ Caprinae CAMP
- \_\_\_\_\_ Costa Rican Endemics CAMP
- \_\_\_\_\_ Costa Rican Endemics CAMP Summary
- \_\_\_\_\_ Crane CAMP (draft)
- \_\_\_\_\_ Felid CAMP
- \_\_\_\_\_ Galliform CAMP
- \_\_\_\_\_ Guan, Curassow, and Chachalaca CAMP
- \_\_\_\_\_ Hawaiian Forest Birds CAMP
- \_\_\_\_\_ Hornbill CAMP
- \_\_\_\_\_ Iguanid/Varanid CAMP
- \_\_\_\_\_ Panamanian Endemics CAMP (draft)
- \_\_\_\_\_ Pigeons & Doves CAMP
- \_\_\_\_\_ Saint Helena Island CAMP
- \_\_\_\_\_ Saint Helena Island CAMP Summary
- \_\_\_\_\_ Small Carnivore CAMP
- \_\_\_\_\_ South American Felid CAMP
- \_\_\_\_\_ Tapir CAMP
- \_\_\_\_\_ Waterfowl CAMP

#### Briefing Books:

- \_\_\_\_\_ African Antelope and Parrot CAMP
- \_\_\_\_\_ Australian Marsupials/Monotreme CAMP
- \_\_\_\_\_ Canids, Hyena & Aardwolf CAMP
- \_\_\_\_\_ Costa Rican Endemics CAMP
- \_\_\_\_\_ Crane Conservation Workshop - Calgary
- \_\_\_\_\_ Galliform CAMP
- \_\_\_\_\_ Guan, Curassow, and Chachalaca CAMP
- \_\_\_\_\_ Hawaiian Forest Birds CAMP & PHVA
- \_\_\_\_\_ Hornbill CAMP
- \_\_\_\_\_ Iguanas & Varanids/Boas & Pythons CAMP
- \_\_\_\_\_ Medicinal Plants of Southern India CAMP
- \_\_\_\_\_ Mexico Felid & Primate CAMP
- \_\_\_\_\_ Panamanian Endemics CAMP
- \_\_\_\_\_ Penguin PHVA & CAMP
- \_\_\_\_\_ Pigeon & Dove CAMP
- \_\_\_\_\_ Primates CAMP
- \_\_\_\_\_ Saint Helena Island CAMP
- \_\_\_\_\_ Sheep, Goat & Rupicaprine CAMP
- \_\_\_\_\_ Small Carnivore CAMP
- \_\_\_\_\_ South American Felid CAMP

### GLOBAL CONSERVATION ASSESSMENT

#### RECOMMENDATIONS (GCARs) (formerly GCAPs)

- \_\_\_\_\_ GCAR Reference Material Packet (English) \$5.00
- \_\_\_\_\_ GCAR Reference Material Packet (Spanish) \$5.00
- \_\_\_\_\_ Australasian Monotreme/Marsupial GCAR Briefing Book
- \_\_\_\_\_ Cervid GCAP Briefing Book
- \_\_\_\_\_ Rhino GCAP Briefing Book
- \_\_\_\_\_ Equid GCAR (draft)
- \_\_\_\_\_ Primate GCAP - 1992 Edition
- \_\_\_\_\_ Rhino Global Captive Action Plan (GCAP) Report
- \_\_\_\_\_ Wild Cattle GCAR (draft)

#### GLOBAL ANIMAL SURVIVAL PLAN (GASPs)

- \_\_\_\_\_ Tiger Global Animal Survival Plan Report
- \_\_\_\_\_ Tiger GASP Briefing Book

### POPULATION & HABITAT VIABILITY ASSESSMENTS (PHVAs)

#### Reference Material:

- \_\_\_\_\_ PHVA Core Material Packet (English) \$5.00
- \_\_\_\_\_ PHVA Core Material Packet (Spanish) \$5.00
- \_\_\_\_\_ PHVA Process Design Manual

#### Reports:

- \_\_\_\_\_ 'Alala, Akohekohe & Palila (Hawaiian Forest Birds)
- \_\_\_\_\_ Aruba Island Rattlesnake PHVA
- \_\_\_\_\_ Asian Elephant PHVA
- \_\_\_\_\_ Asiatic Black Bear PHVA
- \_\_\_\_\_ Attwater's Prairie Chicken PHVA
- \_\_\_\_\_ Baiji Dolphin PHVA
- \_\_\_\_\_ Bali Mynah PVA
- \_\_\_\_\_ Black Footed Ferret Recovery Plan Review
- \_\_\_\_\_ Costa Rican Squirrel Monkey (*Saimiri oestedi*) PHVA
- \_\_\_\_\_ Florida Key Deer PVA
- \_\_\_\_\_ Florida Panther Viability Assessment
- \_\_\_\_\_ Houston Toad PHVA
- \_\_\_\_\_ Javan Gibbon PHVA
- \_\_\_\_\_ Javan Rhino PVA
- \_\_\_\_\_ Kea/Kaka PVA
- \_\_\_\_\_ Kenya Black Rhino Metapopulation Workshop
- \_\_\_\_\_ Kirtland's Warbler PHVA
- \_\_\_\_\_ Leontopithecus Population Viability Workshop (4 species)
- \_\_\_\_\_ Lion Tailed Macaque PHVA
- \_\_\_\_\_ Marsh Deer PHVA
- \_\_\_\_\_ Mediterranean Monk Seal PHVA
- \_\_\_\_\_ Mexican Wolf (draft)
- \_\_\_\_\_ Mississippi Sandhill Crane PHVA
- \_\_\_\_\_ Orang utan PHVA
- \_\_\_\_\_ Pampas Deer PHVA
- \_\_\_\_\_ Peninsular Pronghorn (draft)
- \_\_\_\_\_ Pink Pigeon Conservation Viability Assessment
- \_\_\_\_\_ Puerto Rican Parrot PVA

**PHVA Reports (Continued)**

- \_\_\_\_\_ Sangai PHVA
- \_\_\_\_\_ Sumatran Rhino PHVA
- \_\_\_\_\_ Sumatran Tiger PHVA
- \_\_\_\_\_ Tana River Primate Reserve Conservation Assessment
- \_\_\_\_\_ Thai Gibbon PHVA
- \_\_\_\_\_ White-Winged Wood Duck PHVA
- \_\_\_\_\_ Whooping Crane Conservation Viability Assessment

**Briefing Books:**

- \_\_\_\_\_ Aruba Island Rattlesnake PHVA
- \_\_\_\_\_ Asian Elephant PHVA
- \_\_\_\_\_ Asiatic Black Bear PHVA
- \_\_\_\_\_ Asiatic Lion PHVA/GASP
- \_\_\_\_\_ Attwater's Prairie Chicken PHVA
- \_\_\_\_\_ Baiji Dolphin PHVA
- \_\_\_\_\_ Bali Mynah PVA
- \_\_\_\_\_ Black Footed Ferret Workshop
- \_\_\_\_\_ Blue Macaw Conservation Workshop
- \_\_\_\_\_ Caribbean Parrots Conservation Viability Assessment
- \_\_\_\_\_ Cotton-top Tamarin Conservation Viability Assessment
- \_\_\_\_\_ Gharial PHVA
- \_\_\_\_\_ Hawaiian Forest Birds CAMP & PHVA
- \_\_\_\_\_ Houston Toad PHVA
- \_\_\_\_\_ Indian/Nepali Rhino PHVA
- \_\_\_\_\_ Jamaican Iguana PHVA
- \_\_\_\_\_ Javan Gibbon PHVA
- \_\_\_\_\_ Kameron Blue Butterfly PHVA
- \_\_\_\_\_ Kea/Kaka PVA
- \_\_\_\_\_ Kenya Black Rhino Metapopulation Workshop
- \_\_\_\_\_ Kirtland's Warbler PHVA
- \_\_\_\_\_ Lion-tailed Macaque PHVA/GASP
- \_\_\_\_\_ Mantled Howler Monkey (*Alouatta palliata*) PHVA
- \_\_\_\_\_ Marsh Deer PHVA
- \_\_\_\_\_ Mediterranean Monk Seal PHVA
- \_\_\_\_\_ Mississippi Sandhill Crane PHVA
- \_\_\_\_\_ Orangutan PHVA
- \_\_\_\_\_ Pampas Deer PHVA
- \_\_\_\_\_ Penguin CAMP & PHVA
- \_\_\_\_\_ Peninsular Pronghorn PHVA
- \_\_\_\_\_ Pink Pigeon PVA
- \_\_\_\_\_ Sandplain Gerardia PHVA
- \_\_\_\_\_ Sangai PHVA
- \_\_\_\_\_ Spix Macaw PHVA
- \_\_\_\_\_ Squirrel Monkey (*Saimiri oerstedii*) PHVA
- \_\_\_\_\_ Sumatran Rhino PHVA
- \_\_\_\_\_ Sumatran Tiger PHVA
- \_\_\_\_\_ Tana River Primate Reserve Conservation Assessment
- \_\_\_\_\_ Tapir (*Tapirus bairdii*) PHVA
- \_\_\_\_\_ Thai Gibbon PHVA
- \_\_\_\_\_ Waldrapp Ibis PHVA
- \_\_\_\_\_ White-winged Wood Duck PHVA
- \_\_\_\_\_ Whooping Crane PHVA
- \_\_\_\_\_ Wild Dog (African) PVA

**GENOME RESOURCE BANKING**

- \_\_\_\_\_ Genome Resource Banks: Progress on the Systematic Collection, Storage and Use of Rare Animal Biomaterials
- \_\_\_\_\_ Genome Resource Banking for Conservation in Africa
- \_\_\_\_\_ Genome Resource Banking for Wild Species Conservation
- \_\_\_\_\_ Tiger Genome Resource Banking Action Plan (*draft*)
- \_\_\_\_\_ Population Biology Aspects of Genome Resource Banking

**OTHERS**

- \_\_\_\_\_ A Plan for Genetic Restoration & Management of the Florida Panther
- \_\_\_\_\_ Asian Rhino Conservation Workshop
- \_\_\_\_\_ Genetic Management Strategies and Population Viability of the Florida Panther Briefing Book
- \_\_\_\_\_ Genetic Management Strategies and Population Viability of the Florida Panther Report
- \_\_\_\_\_ International Conference on Implications of Disease Briefing Book

- \_\_\_\_\_ Int'l Conference on Disease Working Group Reports
- \_\_\_\_\_ Przewalski's Horse Draft Global Conservation Plan
- \_\_\_\_\_ Sumatran Tiger Regional Captive Breeding Workshop
- \_\_\_\_\_ Wild Cattle Symposium Proceedings
- \_\_\_\_\_ Other \_\_\_\_\_

**THAI ZOO MASTERPLAN FOR CONSERVATION**

- \_\_\_\_\_ Thai Zoo Masterplan for Conservation Final Report (cost \$50.00)
- \_\_\_\_\_ Thai Zoo Association Planning Materials (4 document set - \$250.00)

**CBSG**

- \_\_\_\_\_ CBSG Newsletters (note volume & number desired)
- \_\_\_\_\_ CBSG Annual Meetings Briefing Books & Reports (\*)
- \_\_\_\_\_ Strategic Planning Report
- \_\_\_\_\_ VORTEX 7.0 Population Modeling Software & Manual

**WORLD ZOO CONSERVATION STRATEGY**

- \_\_\_\_\_ World Zoo Conservation Strategy Summary (cost \$3.00)
- \_\_\_\_\_ World Zoo Conservation Strategy (cost \$10.00)

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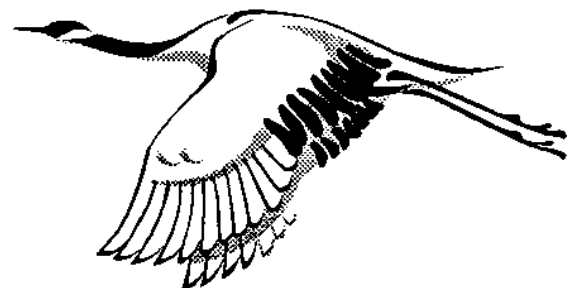
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# CBSG News



*Newsletter of the Conservation Breeding Specialist Group  
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