CBSG News

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

Application of CBSG Processes to Ecosystems and Institutions

CBSG uses a three-component approach to conservation problem solving. CSBG workshops have focused on either individual species and their populations (Population and Habitat Viability Assessment, or PHVA) or on groups of taxa in a region or on a taxonomic group (Conservation Assessment and Management Plan, or CAMP). A primary scientific tool for the PHVA has been the use of genetic and demographic stochastic simulation modeling, especially VORTEX, to assess risk of extinction and to evaluate the response of the population to different management scenarios. A primary tool for the CAMP has been the use of the IUCN Red List criteria for categorizing level of threat to individual species, subspecies, or populations within specific national boundaries.

These workshops are conducted in the range countries of the species with experts and stakeholders from that country having the primary responsibility to assemble and analyze the appropriate field data, to identify and evaluate local threats, and to develop plausible management options. Workshops are usually conducted in the language of the range country, and the reports are produced in that language and at least in part in English. Another essential feature of these workshops is the structuring of the analysis to systematically move from participatory problems and identification of needs to development of specific action steps, with participants taking responsibility to guide and/or implement these actions. Measurable outcomes are stated to allow objective monitoring of progress toward agreed goals. A third feature of the workshop process is working in small groups, with facilitators, in a way that ensures active involvement of all participants according to guidelines of conduct that provide respect for each member's contributions. Drafts of the work are prepared daily by each group and progress is shared between all groups in daily plenary sessions. The final product is the report of the participants' work and recommendations agreed upon by all participants. We also use this basic process in our annual CBSG meetings and in the CBSG Steering Committee meetings.

This three-dimensional CBSG approach to conservation problem solving is being expanded: 1) to ecosystem problems; 2) to inclusion of indicators of the current and projected impact of local human populations on a population or an ecosystem that can be included in the simulation modeling; and 3) to conservation planning in individual institutions.

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Institutional conservation planning covers the full spectrum of possible activities from recycling to conservation messages on all disposable items to choice of species to exhibit to education programs to local and international field projects. This joint process offers an opportunity for development of an institutional conservation culture by bringing to a local focus what is commonly stated as a fundamental foundation of the mission of zoos and aquariums. The formulation of local goals, choice of local programs and projects, and agreement on priorities, if it involves all departments in the institution, can be a powerful tool for recognition and appreciation of each other's role in the welfare and success of the institution. This recognition can provide strong support and reward for the personal, passionate commitment fundamental for the implementation of cross-boundary and long-term conservation programs. This broad base of participation can provide a means of establishing a sense of group identity and ownership in the institution rather than just at a departmental level. We now have two recent examples of application of this approach, at the Minnesota Zoo and the St. Louis Zoo. Reports are available from the CBSG office as well as from these two zoos. By invitation, we are interested in working with additional zoos in the further development of this CBSG program and to develop a set of tools to assist individual institutions. One tool under development is a one to 1.5-day workshop to provide training in small group facilitation and organization of efficient working meetings. A discussion of these latter developments currently underway will appear in the next issue of *CBSG News*.

Ulysses S. Seal, CBSG Chairman

A Note from the Editor

This issue of *CBSG News* presents the reports and results of the 1998 CBSG Annual Meeting held on 8-11 October in Yokohama, Japan. The agenda included reports from regional zoo associations, updates on the activities of our CBSG regional satellite offices, CBSG program updates, and special reports from our Japanese colleagues. Interspersed among these presentations were four working group sessions, during which participants met in 11 working groups to focus on taxonomic and topic-related issues.

Many of the meeting reports are summarized in this issue. Some reports have been abridged due to space limitations, and unfortunately many of the special reports were not able to be included for the same reason. If you are interested in a copy of the complete report or have any questions regarding content, please contact the appropriate author directly. Several of these reports were also included in the briefing book for the annual meeting.

A new addition to *CBSG News* is the inclusion of a related newsletter, *CBSG Donor News*. Since 1995 the *Donor News* has been produced and distributed to all donor institutions. Each issue highlights a donor institution or organization that has made a significant and unique contribution in support of CBSG. Also included is a list of all individuals that participated in a CBSG workshop over the past year. By incorporating the *Donor News* into the CBSG newsletter, we strive to recognize the contributions of our donors before a wider audience and to encourage other individuals and organizations to become more involved in CBSG activities.

Finally, we would like to invite you to join us for the 1999 CBSG Annual Meeting scheduled for 15-17 October 1999 in Pretoria, South Africa. As you can see from Dr. Seal's cover article, CBSG is continuing to expand and grow in scope and process. We plan to have plenty to present and discuss in Pretoria. Please join us!

Kathy Traylor-Holzer
Editor, *CBSG News*

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 CBSG in particular and the conservation community in general. We are interested in exchanging newsletters and receiving notices of your meetings. Contributions of US $25 to help defray cost of publication would be most appreciated. Please send contributions or news items to:

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Staff

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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 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.

AMACZOOA Regional Report

During this year the Mesoamerican and Caribbean Zoo and Aquarium Association (AMACZOOA, formerly AMAZOO) was involved in many activities, including several meetings and CBSG workshops (see CBSG Mesoamerica report in this issue).

The 2nd AMACZOOA Congress was held at La Havana Zoological Garden in La Havana, Cuba during 18-22 May 1998. Sixty-nine people from 31 institutions and representing 12 Latin American countries participated, sharing their experiences and knowledge. The most important achievement of this event was the discussion and approval of AMACZOOA minimal standards for institution members. ■

Submitted by Yolanda Matamoros, AMACZOOA.

ARAZPA Regional Report

The Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA) links zoos and aquariums in Australia, New Zealand, Papua New Guinea and the Islands of the South Pacific. During the last decade, ARAZPA and its member institutions have become increasingly active in international zoo collaboration and in species conservation. This change has been facilitated, at least in part, through involvement with CBSG and the World Zoo Organization.

Conservation Issues in Australasia

Zoos in Australia and New Zealand are currently engaged in wildlife agency-driven recovery programs for 28 threatened species. During May 1998, a workshop was conducted for the coordinators of the captive component of these programs. This workshop allowed for a review of current practices, development of a regional strategy to focus zoo resources, and transfer of expertise among programs.

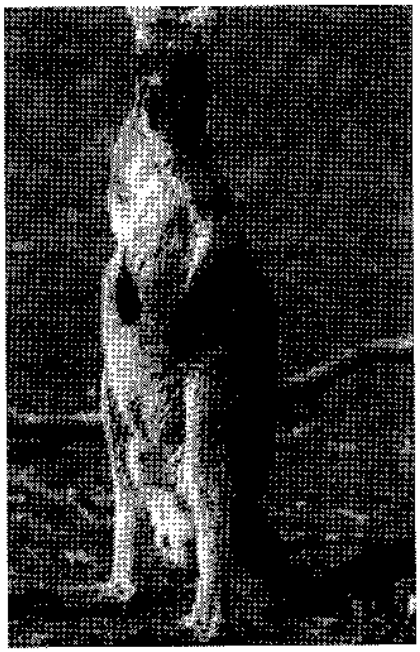
ARAZPA is currently developing a conservation register covering the efforts of member institutions in direct support of species or habitat conservation. The final report will include the results of a survey on implementation of the World Zoo Conservation Strategy initially developed by the European Zoo and Aquarium Association and modified for Australasian zoos.

CBSG conducted a Population and Habitat Viability Assessment workshop on tree kangaroos in Lae, Papua New Guinea (PNG) during September 1998. Australian zoos were largely responsible for raising funds for the workshop. Immediately following was a second workshop addressing the establishment of standards for the display of animals in Papua New Guinea, funded by the World Zoo Organization's training grant. General husbandry standards were drafted along with recommendations for the licensing of captive facilities in PNG and regulation of export of PNG fauna.

Personnel from interested zoos met during July 1998 to formulate a regional zoo response to the decline of amphibians in Australia. This followed a National Threatened Frog Conference hosted by Environment Australia and WWF in November 1997 and a subsequent call for zoo support in implementing the recommendations of Environment Australia's *Action Plan for Australian Frogs.*

In recognition of the significance of invertebrates in terms of global biodiversity and of the fact that these animals are largely neglected by Australasian zoos, ARAZPA has initiated a terrestrial invertebrate project. This project is aimed at raising awareness of this diverse group and at facilitating communication among those interested in working with invertebrates.

Participants at the 1998 ARAZPA annual conference (hosted at Taronga Zoo, Sydney) conducted a critique of a discussion document titled *Ethical and Professional Behaviour in and by Zoos.* This exercise formed part of a consultative process leading to the establishment of a new Code of Practice for ARAZPA.



International Responsibilities for Australian Species

A recent publication, *Birth Date Determination in Australasian Marsupials*, will assist zoos worldwide with the management of captive marsupials. The manual outlines the early development of marsupials for use in estimating their actual date of birth. This will allow a standard approach to estimating and recording the birth date of captive marsupials.

During 1997, Ilaiah Bigilale (Papua New Guinea National Museum and Art Gallery) and Jonathan Wilcken (ARAZPA) were appointed as joint International Studbook Keepers for tree kangaroos. A Tree Kangaroo Studbook Group, consisting of the joint International Studbook Keepers, the SSP coordinator and the EEP coordinator, was subsequently established and the document, *International Studbook and Population Analysis for Tree-kangaroos* produced.

ARAZPA contributed to the Zoological Society of London's workshop on group management by sending ARAZPA Population Biologist, Jonathan Wilcken.

The ASMP Monotreme and Marsupial Taxon Advisory Group has produced several reference documents of interest to international zoos interested in acquiring Australian fauna. These include updated standards for the transport of koalas and draft standards for the transport of macropods. The TAG is now working on a detailed guide for overseas zoos seeking to acquire any species of Australian wildlife.

All regionally endorsed studbooks were again submitted to International Species Information System (ISIS) for publication on the ISIS Studbook CD-ROM. This year, zoos from the Australian region contributed 67 studbooks, many for species endemic to the region.

Contributing to Global Processes

REGASP-Link, a computerized database system developed by ARAZPA to help zoo associations coordinate the collection planning processes of their zoos, has now been shared with other zoo associations. Most recently the American Zoo and Aquarium Association has acquired the system. The Zoological Board of Victoria provided financial support for this project.

Australasian zoos and ARAZPA have had a long-term association with ISIS. That association has now been strengthened with the establishment, by ARAZPA, of a branch office of ISIS in Sydney, Australia. For ISIS members worldwide, this will mean improved services, particularly for software support and for those zoos in a similar time zone to Sydney.

ARAZPA staff members, Caroline Lees and Jonathan Wilcken, have produced a comprehensive guide for studbook keepers and species coordinators titled *Managing Zoo Populations; Compiling and Analyzing Studbook Data.*

The ARAZPA Board of Management would like to encourage members of the international zoo community to attend ARAZPA's next annual conference, which will be held at the Alice Springs Desert Park in the Northern Territory, Australia during March 1999.

Submitted by Christine Hopkins, ARAZPA. ■

AZCARM Regional Report

The Mexican Association of Zoos and Aquariums (AZCARM) today represents 89 active members, including 28 zoos, two aquariums, six breeders, 50 individual members and three commercial members.

The main objective of AZCARM for 1998 is to reinforce staff training. This will lead to better handling, development and maintenance of the collections and will also promote communication among institutions.

Major Activities

- Among the most important activities of AZCARM during this semester has been the continued bimonthly publication of the NOZOOTROS bulletin in which diverse articles on the management of zoos and aquariums are published, along with information on significant events in the region.
- The bulletin of exchange of species has become a very important tool for the improvement and maintenance of our collections.
- The official AZCARM directory was published, which includes a series of technical data on each institution such as official addresses, relevant information and services, and number of species.
- A manual on chemical restraint for wild animals was published.

Training Course

In June 1998 a course on "Clinic and Diagnostics of Wild Animals in Captivity" was presented by the Guadalajara Zoo and the Autonomous University of Guadalajara (UAG). Instructors included: Dr. Linda Munson, University of California at Davis; Dr. Michael Garner, Zoopath; and Dr. Roberto Aguilar, Audubon Zoo.

Invitations were extended not only to Mexican zoos and aquariums but also to all centers that handle wildlife in Latin America. A total of 120 individuals from 10 different countries (Argentina, Cuba, Chile, Ecuador, Guatemala, Mexico, Peru, Dominican Republic, El Salvador, and Venezuela) participated in the training course. Participants represented 54 institutions, including universities, zoos, aquariums and private institutions.

Research Projects

AZCARM is developing an ambitious project to establish a Mexican-based initiative to identify and manage two native spider monkey subspecies (*Ateles geoffroyi yucatanensis* and *Ateles geoffroyi vellerosus*). Information attained will help make decisions regarding the management in captivity of these endangered subspecies. The project will help protect and promote genetically "pure" lineages of each subspecies in captivity. AZCARM will develop a national studbook for captive spider monkey populations. Conservation education programs that address the biology, behavioral ecology and conservation status of native spider monkey populations will be developed and implemented. Five Mexican zoos (Xcaret, Zoomat, Africam Safari, Leon Zoo, and Guadalajara Zoo) are involved in this project.

Karyotypic-level results have already been obtained by the genetics lab at Guadalajara Zoo. Once the Mexican authorities approve appropriate export permits, all blood samples will be forwarded to Dr. Jean Dubach, geneticist at Brookfield Zoo, for further DNA analysis and eventual subspecies identification.

The AZCARM project account has been made possible through donations from the Warner Park Zoo, the Riverbanks Zoological Garden Conservation Support Fund, and the Zoo Conservation Outreach Group.

AZCARM Annual Meeting

The Mexican Association of Zoos and Aquariums will hold its 15th annual conference at Xcaret Zoo and Aquarium, and Xel-Ha Sea Park in Playa del Carmen, Quintana Roo from 11-13 November 1998.

We intend to implement a diverse package of events for the conference that includes a rewarding series of discussion, plenary sessions, presentation of scientific papers as well as lectures and exhibition topical to management, education and administration of Mexican zoos and aquariums. ■

Submitted by Amy Camacho, AZCARM.

AZA Regional Report

The American Zoo and Aquarium Association (AZA) represents 185 North American zoological institutions and over 7,000 zoo and aquarium professionals. AZA currently has 87 Species Survival Plans™ (SSPs) covering 116 species, 44 Taxon Advisory Groups (TAGs), 11 Faunal Interest Groups (FIGs) (now Conservation Action Partnerships, or CAPs) and 10 Scientific Advisory Groups (SAGs). In addition, AZA institutions manage nearly 300 regional and international studbooks. The following represent some of the activities completed during 1997-98.

Population Management/SSPs

- ***Population Management Centers.*** In August 1998, the AZA Board of Directors approved in concept plans to develop two population management centers to be located at selected AZA member institutions. Each center will employ two population biologists to perform SSP master plan analyses.
- ***New Tool for Population Analysis.*** The Lincoln Park Zoo, in cooperation with the AZA Small Population Management Advisory Group (SPMAG), is developing a new software package called Mate Rx. This program is designed for the rapid analysis of captive populations for basic population management.
- ***Demographic Management Workshop.*** The Lincoln Park Zoo, in cooperation with SPMAG, hosted a CEF-funded workshop on the demographic management of small populations in August 1998.

Strategic Collection Planning/TAGs

- ***RCP Development.*** AZA's Wildlife Conservation and Management Committee (WCMC) has developed a set of standardized guidelines for Regional Collection Plan development and expanded TAG responsibilities.
- ***North American REGASP.*** AZA has adopted REGASP, an institutional and regional collection planning software tool developed by ARAZPA. ARAZPA is collaborating with AZA to develop a modified version of REGASP for North America.
- ***C&S Staffing.*** AZA C&S staff was reorganized to include one position that focuses on TAGs and issues related to collection planning.

Fund-raising to Support Conservation

- ***Conservation Endowment Fund.*** The AZA Conservation Endowment Fund (CEF) was initiated to support conservation and related scientific and educational initiatives of AZA members. The CEF's value has now risen to a record $3.7 million.

• ***1998 Conservation Endowment Fund.*** A total of 56 proposals were received, totaling over $1,045,000 in requests. Of these, 19 projects representing a variety of different taxa and approaches were funded (33%), for a total of $289,790.

Conservation Education

• ***Director of Conservation Education.*** AZA has hired a new Director of Conservation Education – Dr. Bruce Carr, formerly of the St. Louis Zoo.

• ***Resource Center.*** AZA is developing a resource center for members. Work has begun on assembling important documents, such as acquisition/disposition policies, animal loan agreements, and educational curricula, which can be requested by AZA members.

• ***Year of the Ocean.*** The AZA Conservation Education (CE) Department, working in collaboration with member institutions and other partners, has produced an Oceans Resource Kit for educators, which has been distributed to all AZA members. The CE Department is also organizing a national poster contest to increase awareness of ocean ecology and conservation.

• ***Conservation Education Committee Strategic Plan.*** The AZA CEC has devised a strategic plan designed to elevate the role of conservation education and create a regional network of educators.

• ***Munson Aquatic Conservation Exhibitry Awards.*** Two $25,000 awards were given this year, to the Bermuda Aquarium for its "North Rock Exhibit" and to the Brookfield Zoo for "The Living Coast." Awards are provided by the Curtis and Edith Munson Foundation in cooperation with AZA.

• ***Education Liaisons.*** A concerted effort is been made to integrate conservation education into all AZA conservation and science initiatives. The CE Department is actively working to match educators with appropriate SSPs, TAGs, FIGs and SAGs.

• ***Tigers in Crisis Exhibit.*** This exhibit has completed successful tours through the Dallas Zoo, Henry Doorly Zoo and Woodland Park Zoo and was developed by AZA with a grant from the National Fish and Wildlife Foundation and Exxon *Save the Tiger Fund.*

International Training/Technology Transfer

• ***Brazil Veterinary Workshop.*** The AZA Brazil FIG and Brazilian Zoo Association organized the Zoological Medicine Training Course for Zoo and Wildlife Veterinarians in Belo Horizonte, Brazil from 22-27 June 1998. Twenty-nine students from Brazilian zoos, universities and wildlife agencies attended.

• ***Brazil Zoo Biology Workshop.*** The AZA Brazil FIG and Brazilian Zoo Association collaborated to hold a zoo biology, husbandry and management training workshop at Sao Paulo Zoo from 10-22 November 1998. The intensive workshop was attended by 35 participants from several Brazilian zoos, and was supported by the AZA's CEF and Brazil FIG.

• ***Malaysia Zoo Biology Workshop.*** The AZA Southeast Asia FIG, National Zoological Park, and collaborators from other AZA institutions conducted a zoo biology training workshop at Zoo Negara, Malaysia from 6-17 April 1998. The workshop, funded by the AZA's Conservation Endowment Fund, was attended by 24 participants.

• ***JAZGA Presentation.*** AZA Conservation and Science Director, Michael Hutchins, gave a presentation on regional collection planning and cooperative population management at the 1998 Japanese Association of Zoological Gardens and Aquariums meeting.

Field Conservation/Fauna Interest Groups

• ***FIG Chairs Meeting.*** The AZA FIG chairs met in Bethesda, MD in February 1998. Major recommendations included: 1) a name change for FIGs to CAPs or "Conservation Action Partnerships"; 2) the establishment of expert committees to review and endorse quality field projects for each FIG; 3) establishment of a closer working relationship between FIGs and SSPs, TAGs and SAGs; and 4) development of a mechanism for announcing *in situ* project opportunities.

• ***Catalog of In Situ Opportunities.*** Based on the recommendation of the FIG chairs, the AZA Board approved the development of a web-based catalog of C&S committee-endorsed projects, including project description, contact information and assistance needed.

• ***Field Conservation Resource Guide.*** Work continues on the *AZA Field Conservation Resource Guide*, which is expected to be published by spring 1999.

Partnerships

• ***AZA/FWS MOU.*** The AZA signed a national-level Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service at the 1998 AZA Annual Conference in Tulsa, OK. The MOU will link, for the first time, AZA's SSPs, TAGs, FIGs and SAGs with the FWS Endangered Species Recovery Act Program.

• ***FWS Giant Panda Policy.*** The FWS has published its official policy on the importation of giant pandas into the U.S. and lifted the moratorium on giant panda importation. The new policy states that any import permits must be compatible with the *AZA Giant Panda Conservation Action Plan* or equivalent approved plan.

Science/Scientific Advisory Groups

• ***Avian Scientific Advisory Group.*** The Avian Interest Group has been approved as AZA's 10th SAG.

• ***SCB Annual Conference.*** The AZA C&S Office and the National Zoological Park/Smithsonian Institution are involved in planning the Society for Conservation Biology's 1999 Annual Conference.

Conservation Planning

• ***Elephant Planning.*** The AZA Board of Directors has initiated a planning process to address the future of elephants in North American zoos. Three meetings are planned, focusing on ethical issues, population management, husbandry and linkages to field conservation.

Ethical Issues

• ***Disney Great Ape Meeting.*** The Walt Disney Company hosted and supported a meeting on ethical issues related to great ape conservation and captive management. Proceedings will be published in the AZA/Smithsonian Press book series, Zoo and Aquarium Biology and Conservation.

• ***Keiko/Free Willie Foundation.*** The AZA has expressed concern to the Keiko/Free Willie Foundation about the transfer of Keiko the killer whale to Iceland for "public display" and possible release. AZA does not believe that Keiko is a good release candidate; technologies for releasing captive cetaceans are not well developed; and there is concern that IUCN and AZA reintroduction guidelines are not being followed.

• ***AZA Animal Acquisition/Disposition Policy.*** The AZA Animal Acquisition/Disposition Policy is being reviewed and updated by a Board-appointed task force.

Publications

• ***Second Nature.*** The second volume in the Zoo and Aquarium Biology and Conservation book series was published in 1998 entitled *Second Nature: Environmental Enrichment for Captive Animals.*

• ***AZA Annual Report on Conservation and Science.*** The 1996-97 *AZA Annual Report on Conservation and Science* is now completed after several delays. The 1997-98 volume is currently under production.

Public Relations

• The AZA Public Affairs Department has been increasingly successful in stimulating the media to write about AZA members and programs. A preliminary analysis indicted an equivalent advertising value of over $100,000 for the first six months of 1998.

Government Affairs

• AZA was active in the passage of the U.S. Asian Elephant Conservation Act, which will provide U.S. government funding for *in situ* conservation, and the U.S. Rhino and Tiger Labeling Act, which will prohibit the sale, importation and exportation of products labeled or advertised as containing rhino or tiger parts.

• AZA worked with public television stations and museum organizations to increase FY99 appropriations for the Institute of Museum and Library Services and the NSF Informal Science Education Directorate.

Administration

• ***Office Consolidation.*** The AZA is consolidating all of its operations to its office in Silver Spring, MD. Consolidation will be complete by 31 March 1999.

• ***2020 Project.*** The AZA Board of Directors has initiated a project designed to look at future trends that may affect the zoological profession.

• ***AZA Web Site.*** The AZA web site has been improved considerably. A members only section has been launched with Animal Exchange Online. The average number of hits a day is 13,225, for a projected total of 4,827,125 hits per year.

• ***Staff Changes.*** The following staff have been hired: Brandie Smith, (Conservation Biologist, Population Management and Record Keeping); Ruth Allard (Conservation Biologist, Collection Planning and Conservation Education); and Michael Souza (formerly Claudia Locklin) as Administrative Assistant. Liza Hershel is now Assistant Director of Conservation Education, Kate Bronislawski is Coordinator of the new AZA Resource Center, and Laura Benson is Director of Administration and Finance. ■

Submitted by Michael Hutchins, AZA.

FZG British Isles Regional Report

The annual report of the Federation of Zoological Gardens of Great Britain and Ireland (FZG) consists of reports from the Conservation and Animal Management Committee (CAM) and the Joint Management of Species Committee.

Conservation & Animal Management Committee

Chairman: Mr. Nick Lindsay

The Conservation and Animal Management Committee (CAM) met three times during the past year.

- ***Membership of the Committee:*** Dr. Miranda Stevenson was replaced by Mr. Neil Bemment because of change of Chair of the Joint Management of Species Committee. Mr. Quentin Bloxam joined the committee as a new member. Mr. David Hughes resigned from the committee after five years of service. Ms. Caroline Lees, as Federation Conservation Coordinator, was not replaced following her departure from the secretariat.

- ***Work of the Committee:*** The loss of the Conservation Coordinator and changes in JMSC meant the year became rather disjointed. However, a number of topics were handled through CAM, which are covered below. Reports from JMSC are presented separately.

- ***Liaison with Statutory Agencies:*** Although Mr. Hughes resigned from CAM, he maintained his role as Liaison Officer with the Statutory Agencies, particularly concerning Native Species programs. This role was taken on to some degree by Mr. Douglas Napier; however, it was agreed that a number of the TAG chairs would maintain the liaison with the relevant authorities with regard to their respective species.

- ***Welfare of Animals During Transport:*** CAM made extensive comments on the draft document, many of which have been included in the final directive.

- ***Disposal of Surplus Stock:*** The departure of Ms. Lees and the screening of a television program relating to the topic meant the review of this document changed format and direction. The policy was developed with a broader format covering all animal transactions and will be adopted as a policy subject to Council approval.

- ***Federation Policy Documents:*** CAM undertook a review of all documents in the Federation's files, either as guidelines or policy. Some of these have been filed as no longer relevant but others will be updated and circulated to members as they are completed.

- ***RSPCA:*** CAM has maintained contact with the RSPCA mainly through the International Zoo Seminar Forum. Initiatives have been prepared to develop a closer working relationship with specific projects which are under review through the Director of the Federation and the committee.

- ***Conservation Coordinator:*** This position has not been filled due to financial constraints. It was agreed by Council that, subject to confirmation in 1998, a new Coordinator will be employed. CAM and JMSC have been covering some aspects of the Coordinator's job to ensure continuity in some of the roles.

  It is recognized that the role of the Coordinator is likely to change. The production of the annual inventories is considered a priority and CAM has undertaken the task of ensuring the 1997 inventories are produced in 1998.

- ***EEP Committee:*** As Chairman of CAM, Mr. Nick Lindsay sits on the EEP Committee. This committee is very active in formulating and monitoring the EEPs. Considerable progress is being made with the EEP process, and the EEP Committee provides a good opportunity for the Federation to present its position with the JMSPs.

Joint Management of Species Committee

Chairman: Mr. Neil Bemment

The committee met three times in 1997 in conjunction with the Conservation and Animal Management Committee meetings.

• ***JMSP Annual Report:*** The 1996 report was produced for the 1997 Annual Conference and General Meeting hosted by Whipsnade Wild Animal Park.

• ***Annual Conference:*** Seven invited speakers gave illustrated presentations on a range of topics. The final session was a light-hearted debate on the pros and cons of maintaining British wildlife in zoo collections.

• ***Conservation Coordinator:*** One of the most significant events to affect JMSC this year was the announcement that, following the resignation of Caroline Lees, the post of Conservation Coordinator would not be replaced for the foreseeable future for financial reasons. This was anticipated to have serious implications on the level of guidance and support for British and Irish Taxon Advisory Groups, as well as on other Federation office services. It was hoped that this situation would be resolved early in the New Year.

• ***Animal Transactions Policy:*** A large proportion of the 1997 JMSC meeting time was spent reviewing this document drafted by the Conservation Coordinator to replace the *Disposal of Surplus Stock Guidelines.* Opinions ranged as to whether or not the document should be binding for members.

It was generally agreed that the contents of the document were a comprehensive assessment of the options available for the disposition/acquisition of stock and that in principle there should be no difference in the protocol adopted for relocating an invertebrate as for a higher mammal. Potential problems with its practical implementation were highlighted for consideration by CAM and, ultimately, Council.

• ***Training Programs:*** An ARKS, SPARKS and REGASP workshop was held at Manchester Metropolitan University in March. Development of the REGASP-LINK program for Europe is still pending.

• ***Husbandry Guidelines***: Guenon guidelines are in final draft and will soon be out for review. No further progress has been made on those for lemurs owing to pressures of work on those provisionally involved. Flamingo guidelines are still out for review.

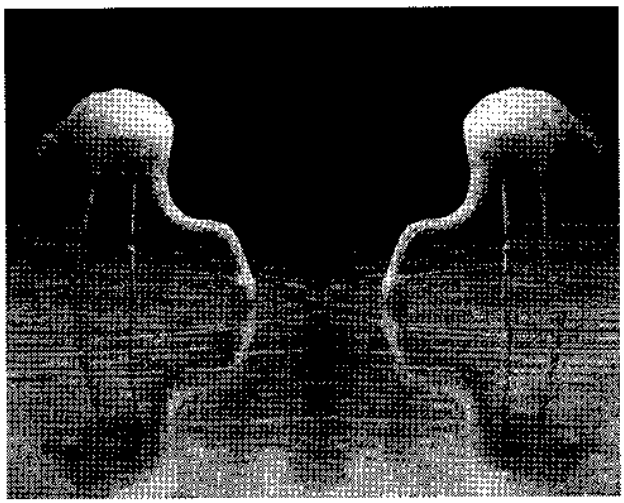
• ***TAG Leaflets:*** These will be produced in the future by the Education Committee in conjunction with the relevant TAG.

• ***Liaison with EEP Programs:*** Several British and Irish coordinators attended the 1997 EEP Conference hosted by Alpen Vogelpark. JMSC continues to contribute toward the development of the EEP programs; however, it was anticipated that the Federation would be unable to provide as much assistance to the EAZA office while the Conservation Coordinator's post remains frozen. It is not generally appreciated by non-members of the Federation who opt to subscribe just to EAZA that a significant proportion of the Coordinator's time was spend on European commitments and, as such, they were benefiting indirectly from Federation services without contributing financially. This was to be addressed in 1998.

• ***Liaison with Other Regions:*** Caroline Lees attended the CIRCC meeting convened during the 1997 CBSG Conference held in Berlin. In view of her departure in September and the temporary suspension of the Conservation Coordinator's post, it was agreed that the Chairperson of JMSC would act as corresponding member of CIRCC on behalf of the Federation in the interim.

It is hoped that those functions usually fulfilled by the Conservation Coordinator will be reinstated as soon as possible in the new year, and that the JMSPs will continue to thrive for as long as they serve a useful function in disseminating information and acting as valuable discussion forums. ■

Submitted by Nick Lindsay and Neil Bemment, FZG.



EAZA Regional Report

The number and size of the tasks that the European Associations of Zoos and Aquariums (EAZA) Executive Office team fulfills have increased steadily as EAZA continues to grow; membership increased from 207 members in 24 countries in 1996 to 256 members in 29 countries by April 1998. EAZA Council's proposal to increase the number of staff was approved by the AGM in September 1998.

EEPs, ESBs and Collection Planning

Some 200 species are currently managed through EEPs and ESBs in the EAZA region. Additionally, most mammalian and avian taxa are now covered by a Taxon Advisory Group (TAG) and are in the process of developing Regional Collection Plans for European zoos. However, more attention needs to be devoted to reptiles, amphibians, fish and invertebrate management and collection planning, and TAGs have been or are now being initiated for most of these taxa.

The collection planning process requires a systematic and objective methodology. EAZA has committed itself to providing financial support to ARAZPA for the continued development of the collection planning software REGASP. Funding needs to be found for this contribution, and for the introduction of REGASP and the related LINK software to the European zoo region. Increased membership of ISIS is also necessary in this regard, as only some 55% of all EAZA members are currently a member of this organization

It is interesting, and discouraging, to calculate that only a relatively small number of EAZA members, namely some 80 of the 256 (32%) coordinate EEPs, ESBs or TAGs. Zoos that run these programs tend to run more than one. These zoos contribute significantly more to the future of the European zoo collection and should be rewarded for their extra activities.

There is a limit to the number of EEP, ESB and TAG programs that can be supported by the central office. An evaluation of the functioning of EEP Coordinators, European studbook keepers and TAG chairs is currently being undertaken, and further expansion of the number of programs will be kept to a minimum before the results of the evaluation are available.

Only three new EEPs were approved by EAZA in the past year, namely for wrinkled hornbill, Alaotran gentle lemur and fishing cat. This brings the total number of EEPs to 125. Additionally, ESBs were approved for Gentoo penguin, king penguin, bar-pouched wreathed hornbill, Papuan wreathed hornbill and Stanley crane. There are currently 54 European studbooks being maintained.

Two new Taxon Advisory Groups were approved, one for canids and hyenas, and the other for Charadriiformes. Thirty Taxon Advisory Groups have been approved by the EEP Committee so far. Several TAGs have already produced (draft) European collection plans. Recently the EEP Bear TAG also produced husbandry and management guidelines.

Zoo Information Centers (ZICs)

The EAZA ZICs were established two years ago by the EAZA Working Group on support to Central and East European Zoos. These centers can be described as small regional satellite offices of the EAZA Executive Office and considerably facilitate communication between 'Amsterdam' and the respective regions. There are currently six ZICs, based in the zoos of Warsaw (Poland), Prague (Czech Republic), Budapest (Hungary), Moscow (Russia), Kiev (Ukraine) and Riga (Latvia). Progress achieved in the last two years was evaluated during a meeting in Prague in May 1998.

Available and Wanted List

The EAZA Available and Wanted List has been published 19 times since it was launched in December 1993. This quarterly publication is produced exclusively for EAZA members, and is extremely popular. Nevertheless, 30% of EAZA members refrain from using this membership service. We hope to include more invertebrate and fish taxa in the future so that the increasing number of EAZA member aquariums will also become active participants. The possibility of providing the Available & Wanted List on an EAZA web site is also being investigated. We will also propose to IUDZG-WZO to explore the possibility of producing a Global Available and Wanted List in cooperation with the other regional zoo associations.

EAZA would also like to investigate the development of a cooperative EAZA animal transport schedule listing. This listing should provide colleague members with information on planned transports, so that several zoos can work together when transferring animals to zoos in the same region. This can lead to increased efficiency, lower costs and also make zoos independent of commercial animal dealers working as transporters.

EAZA News

The restyled *EAZA News* has become very popular. The number of copies printed and distributed per issue has almost doubled in little more than one year, leading to a much wider distribution among the staff of EAZA member institutions. About 100 EAZA members (40%) have contributed news for the past eight issues.

TAG Survey

The EAZA Office distributed questionnaires for the seventh series of the EEP TAG Survey among 300 European zoos in March 1998. Taxa being surveyed include invertebrates, canids, cranes, passerines and small mammals. Responses were received from 230 institutions so far, and these will be compiled, published and distributed by the end of 1998.

Consultancy

The first serious consultancy project by the EAZA Office was for the Bursa Zoo in Turkey. The Director of EAZA and the chair of the working group on Support to Central and East European Zoos have been acting as consultants in the development of a new zoo in the city of Bursa. The European Commission and IUDZG-WZO have also shown a recent interest in contracting EAZA for several CITES-related projects. ■

Submitted by Koen Brouwer, EAZA.

FUNPZA Regional Report

The National Foundation of Zoological Parks and Aquaria (FUNPZA) represents 19 institutions in Venezuela. Since 1992 its mission includes the need to deal with the lack of expertise in the zoos at the technical level. FUNPZA serves as facilitator for:

- Production of the technical manuals and reports.
- Training courses which include veterinarians, directors and zoo keepers.
- National and international programs.

Important developments during 1997-1998 include:

Technical Support

FUNPZA provides technical assistance to standardize the National Record Keeping and Identification System, by ringing and tattooing each animal and giving an introduction to ARKS and MedARKS to encourage zoos to join ISIS. Since 1996 FUNPZA has kept the captive population database for Venezuela.

FUNPZA evaluates several projects, such as:

- A new Asian elephant exhibit at Las Delicias Zoo.
- A new feline exhibit (Bengal tiger) at El Pinar Zoo.
- A new botanical and zoological park, El Ingenio.
- A new bird house at Parque del Este.
- New exhibits at Aquarium J.V Seijas.

FUNPZA is a member of the IUCN Venezuelan Executive Committee.

Training

National Workshops

- Zoo design, with the co-participation of National Parks Services and Sherman-Yañez-Mikami Inc.
- Collection planning.
- Identification and record-keeping.

International Workshops

- Mesoamerican Association of Zoological Parks (AMAZOO), La Habana, Cuba.
- 14th meeting of fauna committee of CITES. Caracas, Venezuela.

Conservation Education

FUNPZA provided support and directions in the development of educational plans (guides, signs and labels) in Parque del Este and Caricuao Zoo (funding by World Bank and Aquarium J.V.Seijas).

Sister Zoos

FUNPZA followed-up on the sister zoo programs between The Zoo, Gulf Breeze and Maracaibo Zoo and between Dallas Aquarium and Aquarium J.V. Seijas.

Captive Breeding

An official agreement was made among the Venezuelan Ministry of the Environment, FUNPZA and the Jacksonville Zoological Gardens to conduct the project "Captive Breeding of the Venezuelan Jaguar".

Legislation in Zoos

Since 1995 FUNPZA has evaluated projects for new zoos in the country and sent recommendations to the Venezuelan Wildlife Services (PROFAUNA).

Since October 1997 the Venezuelan Ministry of the Environment approved the Norms for the Functioning and Registration of Zoos and Aquaria in Venezuela. FUNPZA together with the Venezuelan Wildlife Service supervises and evaluates the established zoos with emphasis in their requirements and priorities. ■

Submitted by Pedro Trebbau, FUNPZA.

India Regional Report

Indian Zoo Directors' Association (IZDA)

The IZDA held its annual conference in January 1998 in Bombay. Mr. K. L. Velodi, superintendent of Bombay Zoo, is the new President of IZDA, replacing Mr. S. K. Patnaik. Mr. Patnaik is now Chief Wildlife Warden of his state. Zonal Coordinators were elected for different regions of India to promote better communication and cooperation among zoos in India. In July the Southern Regional Zoo Directors held a meeting in which important issues were discussed such as confiscated animals, overcrowding in zoos and training for the region. The second edition of the *Indian Zoo Yearbook* has been produced as well as a compendium of research articles of Indian zoo, wildlife, and veterinary personnel.

Central Zoo Authority (CZA)

Mr. S. C. Sharma has received a promotion to the post of Inspector General, Wildlife but has held the additional charge of Central Zoo Authority. The post of Member Secretary, Central Zoo Authority has remained vacant but should be filled by the beginning of December. Central Zoo Authority has closed many substandard zoos and given notice for others to be closed if they do not come up to standards. A High Court decision recently ruled in favor of Central Zoo Authority's request to close down several travelling zoos or mobile menageries. This has resulted in a large number of unfit zoo animals from these facilities being offloaded onto larger zoos. Some of these zoos – one for every region in the country – have been designated as Rescue Centers and given assistance by the Central Zoo Authority.

CZA has given grants totaling several million rupees to zoos for upgrading basic facilities to bring these institutions in line with the norms and standards set by the Zoo Act of 1991. The Zoo Act itself has been amended this year with the passage of a new set of amendments to the Wildlife Protection Act which are anticipated to pass at any time. It will now be necessary to obtain permission from the Central Zoo Authority before starting a new zoo. Also this year a long pending National Zoo Policy was released from the Cabinet Committee and is in place. The draft of this National Zoo Policy was the impetus for the formulation of the Zoo Act.

The Central Zoo Authority and Technical Committee have been reconstituted as of February 1998 with politically influential people as members. Former members with technical expertise have been taken on as consultants. ■

Submitted by Sally Walker, Zoo Outreach Organization.

JAZGA Regional Report

The 10th SSCJ Annual Meeting and Workshop was held in Hamamatsu City on 21-22 October 1997. It was attended by 232 persons from 106 institutions (including 58 zoos and 37 aquaria). Other meetings in 1997 include:

- 23rd Marine Mammals Workshop, Izu Mito Sea Paradise (2-4 February).
- Cheetah Breeding Committee, Tobe Zoological Park, Ehime (9-10 July).
- SSCJ Meeting, Sunshine Bldg , Tokyo (17 July).
- White-Tailed Sea-Eagle, Kushiro Zoo, Hokkaido (20 August).
- Reintroduction Project Meeting.
- Penguin Taxon Meeting, Tokyo Sealife Park (5 September).
- Finless Porpoise Breeding Com., Marineworld Uminonakamichi (10-11 September).
- Fish Taxon Com. Meeting, Suma Sealife Park, Kobe (25 September).
- 7th Annual Elephant Workshop, Tama Zoological Park (8-9 October).
- 42nd Aquarium Technique Workshop, Aburatsubo Marine Park (26-27 November).
- 45th Zoo Technique Workshop, Noichi Zoological Park, Kochi (2-4 December).

Addition of Species to Management

SSCJ newly added ezotomiyo (*Pungitius tymensis*) to Species for Propagation, and wombat and giraffe to Species for Registration (see *CBSG News* 8:2, 1997 for a complete list of other managed species).

Short-Term Program By Taxon

Marsupials/Edentates

- To evaluate koala subspecies.
- To make a new pair for giant anteater forming plural strains.

Primates

- To rearrange the pairs of young lowland gorillas.
- To actively attend to the meeting of the propagation working group.

Carnivores

- To promote the artificial breeding of cheetahs.
- To compile the basic data for propagation of red pandas.

Marine Mammals

- To fix the limit of the release of seals to the wild.

Ungulates

- To increase the number of institutions that keep breeding pairs of Asian elephant and Japanese serow.
- To secure new institutions to keep rhinos and tapirs.
- To increase the number of institutions that keep groups of Grevy's zebras.

Birds of Prey

- To promote the plan for release of white-tailed sea-eagles to the wild.
- To promote the captive breeding of Blakiston's fish owl intending to introduce new founders from the wild.

Penguins

- To solve the problem of hybridization between species of Spheniscus penguins.
- To set the limit of keeping numbers of Spheniscus penguins in each institution.

Storks, Pheasants and Cranes

- To analyze the strain of the Oriental white storks of obscured origin.
- To commit to the international studbooks of white-naped crane and hooded crane.
- To develop a propagation plan for pheasants.

Small Birds

- To produce a husbandry manual for the salmon crested cockatoo and great Indian hornbill.
- To promote the short-term program (five years) for each small bird.

Reptiles and Amphibians

- To promote indoor breeding of the giant salamander under an artificial climate.

Fish

- To secure the founder population of tanagomodoki, *Hypselotris cyprinoides*.
- To compile the husbandry manual for rare fresh-water fishes.

Technical Groups

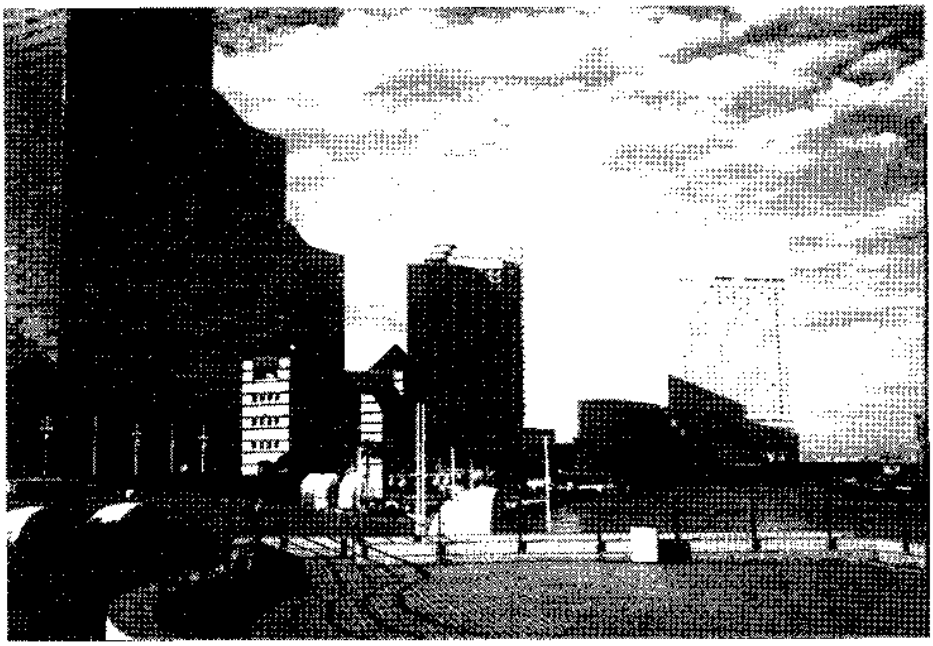
- To carry out a questionnaire concerning the artificial breeding and gene resources application.
- To begin activities of each group when its cooperative setup is organized.
- To hold a study course for related matters, to compile for manuals, and to issue newsletters.

SSCJ Reform and Forthcoming Conference

JAZGA established the Species Survival Committee in 1988 as the support organization of the Board of Directors. At the Board of Directors Meeting held in May 1998 it was decided to reform the SSCJ and Conservation Committee for a more active system. The new SSCJ consists of the Chairman of JAZGA, Director of the Conservation Committee, 12 taxon coordinators and six directors of zoos and aquariums representing six regions in Japan.

The next SSJC Conference will be hosted by Ueno Zoological Gardens, Tokyo in October 1999. ■

Submitted by Mamoru Kamatsu, JAZGA.



Pacifico Yokohama, site of 1998 CBSG Annual Meeting.

SEAZA Regional Report

SEAZA includes the nine member countries of ASEAN, potential member country of Cambodia and, for historical reasons, Hong Kong and Taiwan. Thus we stretch from Burma in the west to West Irian Jaya in the east. Within this regional grouping of zoos there are some national zoo organizations – the Indonesian PKBSI, the Malaysian MAZPA and the Zoological Parks Organization (ZPO) of Thailand.

The economic downturn that has led to a full-blown recession in Indonesia, Malaysia and Thailand will affect the region next year. This has already and will have far reaching effects on zoos in the region.

Fires wiped out two million hectares of tropical rain forest in Sumatra and Borneo in 1997, and the resulting haze and political unrest diverted tourism from the region. The change of the President in Indonesia may help reduce fires in the future, the primary cause of which appearing to be land clearing by illegal burning for agriculture. The economic and currency crisis in Indonesia will, if anything, stimulate more cultivation and if there is no rain, more fires.

Thus the outlook for our region, once one of the most financially healthy, is presently rather bleak.

SEAZA ran a three-week Zoo Management course for 20 curators and managers in Singapore in 1997 and the same course in Bogor, Indonesia in October 1998. The first was with the kind assistance of the Jersey Wildlife Preservation Trust; the second is being done in-house. In 1998 we also conducted a five-day Computerized Animal Records, Identification and Chemical Restraint Workshop in Taiping, Malaysia, for about 20 curators. All of these training programs were well attended by a range of SEAZA members and made possible by a grant from the World Zoo Organization. The zoo management course was held in Bogor because of the currency crisis, which made it cheaper for us to send our trainers to Indonesia than conduct the course in Singapore. It also allowed us to focus on one language. We shall be doing the same in Thailand in 1999.

The Smithsonian Institute also ran a zoo biology course with the Malaysian Wildlife Department in 1998, which was open to SEAZA members.

The thrust of conservation in our region has focused heavily on training, especially on record-keeping, for we realized early on in our eight-year history that we could not do much for captive breeding if we did not know what we had in the 90 zoos, aquariums and butterfly parks.

The regional economic crisis also led us to postpone our annual conference scheduled in Saigon, Vietnam, as we felt that it would be very underattended. Instead we have scheduled a three-day strategic planning workshop to develop a Five-Year Action Plan for SEAZA. This will be held at the end of November 1998 in Bangkok, Thailand. A Thai management consultant will be engaged as a facilitator. Some of the topics to be considered are the future direction of SEAZA, how to make money in a recession, regional studbooks and regional collection planning, *in situ* links and training programs.

Obviously, SEAZA is almost broke as very few member zoos can afford to continue paying subscriptions. Subscription fees have been reduced during the recession for zoos that can afford to pay something.

We were sad to learn of the death of Steve Leatherwood, SEAZA executive committee member from Ocean Park, Hong Kong and Chairman of the SSC Marine Mammal Specialist Group. ■

Submitted by Bernard Harrison, SEAZA.

The following statement was developed at the 1998 CBSG Annual Meeting in Yokohama, Japan and was officially adopted by the World Zoo Organization.

RECOMMENDATION:

The zoo community should take full responsibility for regulating its own affairs. WZO encourages every regional zoo association to reach minimum standards and to cease animal transfers with zoos that do not meet regional standards of:

- Animal welfare and husbandry
- Veterinary care
- Educational pursuit
- Conservation program effort
- De-commercialization of trade in species

Adopted at WZO Annual Conference, Nagoya Japan 1998.

Primary Regional Zoo Associations and Contacts

ALPZA – Latin American Association of Zoological Gardens and Aquariums
Contact: Yolanda Matamoros, Simón Bolívar Zoo, San Jose, Costa Rica (fundazoo@sol.racsa.co.cr)

AMACZOOA – Mesoamerican and Caribbean Zoo and Aquarium Association
Contact: Yolanda Matamoros, Simón Bolívar Zoo, San Jose, Costa Rica (fundazoo@sol.racsa.co.cr)

ARAZPA – Australasian Regional Association of Zoological Parks and Aquariums
Contact: Christine Hopkins, Taronga Zoo, Sydney, Australia (christine@arazpa.org.au)

AZA – American Zoo and Aquarium Association
Contact: Michael Hutchins, AZA C & S Office, Silver Spring, MD, US (mhutchins@aza.org)

AZCARM – Mexican Association of Zoos and Aquariums
Contact: Amy Camacho, Puebla, Mexico (azcarm@noc.pue.udlap.mx)

CAZG – Chinese Association of Zoological Gardens
Contact: Zheng Shuling, CAZG Office, Beijing, China

CAZA – Canadian Association of Zoos and Aquariums
Contact: John Carnio, Metro Toronto Zoo, Toronto, Canada

EAZA – European Association of Zoos and Aquaria
Contact: Koen Brouwer, National Fdn for Research in Zoos, Amsterdam, Netherlands (nvdzoos@nvdzoos.nl)

FUNPZA – National Foundation of Zoological Parks and Aquaria
Contact: Pedro Trebbau, Venezuela (j00035115-1@cantv.net)

FZG – Federation of Zoological Gardens of Great Britain and Ireland
Contact: Peter Olney, London Zoo, London, United Kingdom

IZDA – Indian Zoo Directors Association
Contact: K.L. Velodi, Bombay Zoo, Bombay, India

JAZGA – Japanese Association of Zoological Gardens and Aquariums
Contact: Atsushi Komori, JAZGA Office, Tokyo, Japan

PAAZAB – Pan African Association of Zoological Gardens, Aquariums, and Botanical Gardens
Contact: John Spence, Tygerberg Zoopark, Kraaifontein, South Africa

PKBSI – Indonesian Zoological Parks Association
Contact: Lukito Daryadi, PKBSI Office, Jakarta, Indonesia

SEAZA – South East Asian Zoo Association
Contact: Bernard Harrison, Singapore Zoological Gardens, Singapore (singzoo@pacific.net.sg)

ZPO – Zoological Parks Organization of Thailand
Contact: Pisit na Pattalung, ZPO Office, Bangkok, Thailand

Please contact us with any corrections or additions to this list.

CBSG, India Report

Since the CBSG meeting in Berlin last year, CBSG, India has conducted three CAMP workshops, completed nine CAMP reports, undertaken two training seminars on CAMP workshops and Red List criteria, organized new networks and Special Interest Groups (SIGs), provided advisory services to zoos, and created a web site.

The CAMP workshops were the last workshops in the series of biodiversity assessment workshops undertaken in 1997. Also a series of workshops for the Madhya Pradesh State Non-Timber Forest Products Association and the Indian Institute for Forest Management were begun first by assessing 40 Non-Timber Forest Products (NTFPs) of Madhya Pradesh state. NTFPs are usually thought to be not endangered, and the CAMP results demonstrated that some species were indeed threatened and require management.

Two CAMP training modules were conducted in connection with international workshops held in India, one at the FRLHT Medicinal Plants conference and another at a Southeast Asian training course on participatory forest management at the Indian Institute for Forest Management. Upcoming in 1999 are four CAMPs for corals, large-bodied spiders, dragonflies, and orchids of the Western Ghats.

Also, the Indian Institute for Forest Management, Government of India, NTFP Association of Madhya Pradesh and the Forest Department of Madhya Pradesh have requested a series of CAMPs for NTFP species for the state of Madhya Pradesh - about 1,000 species in total. If this is done it may create an initiative in many of the other India states.

Sanjay Molur represented CBSG and Asia at IUCN Red List Scoping workshop and Regional Red List Review Process (see Special Report in this issue).

CBSG, India Education SIG along with Zoo Outreach Organization organized an Asian Regional Network of the International Zoo Educator Association which now has 61 members from 15 countries in Asia. Initial activities have been undertaken with a seed grant from the Columbus Zoo Conservation Fund. A newsletter has been produced and sent to over 1,500 zoos and individuals in the international as well as Asian zoo community. Resource materials, resource books, directory, zoo education department profile document, training and encouragement of national level networks and associations are the major activities of the network.

CBSG, India Bear SIG, a new initiative started this year, produces educational and technical material and lobbies for better handling of confiscated bears in zoos.

CBSG, India Red Panda SIG coordinates red panda activities in India for the International Red Panda Management Group. Educational materials have been produced and a PHVA for red pandas planned for 1999

An Orchid SIG has been initiated by a retired botanical scientist, Dr. Anandha Rao, who is networking orchid specialists and organizing a CAMP for orchids of the Western Ghats. Dr. Rao is also organizing a group to focus on Strand Vegetation of the Indian Coastline.

A Reptile SIG is being formed on recommendation from the Reptile CAMP and in association with IUCN/SSC Reptile and Amphibian Specialist Group for the Indian Subcontinent, networking south Asian herpetologists. This is being done by Sanjay Molur, who has done an excellent job networking the amphibian research community.

The Invertebrate SIG has produced a directory of Indian Invertebrate researchers in the conservation arena. Two ABC coloring books for invertebrates have been designed and are awaiting publication.

The Amphibian SIG has produced a directory of Indian amphibian researchers in the conservation arena. A training course in field techniques and field survey of Kempoley Forest for "lost" Rao species of amphibians is being conducted in December 1998. Both the survey and training course are direct results of CAMP recommendations.

The Elephant SIG completed the final iteration of the Mahout Training Manual and turned all other activities over to the Elephant Welfare Association.

CBSG, India has served as an impetus for CBSG Sri Lanka, arranging for their Convenor to participate in the CBSG facilitator training at JWPT in 1998.

The Coimbatore Zoo is now Nilgiri Biosphere Conservation Park and is a major project of Zoo Outreach Organization/CBSG, India, which provides advisory services. The land has been handed over by the state government. The first phase of construction is to begin in January for a small portion of the zoo, which will constitute the entrance plaza and a garden containing a mini zoo with all elements of the entire zoo in microcosm. Masterplanning for the main zoo will go on simultaneously. Conservation breeding projects for amphibians, invertebrates and plants are underway. ■

Submitted by Sally Walker, CBSG India.

CBSG Indonesia Report

Indonesia, as one of several countries known for its immense biodiversity, realizes that conservation programs are very important in order to maintain the sustainability of each species and information from the wild, as both *in situ* and *ex situ* captive breeding are necessary to support the conservation program.

A century ago, tens of thousands of tigers roamed the islands of Bali, Java and Sumatra. By the late 1930s the Bali tiger was driven to extinction, followed by the Javan tiger in the 1970s. Now only the Sumatran tiger remains, its wild population limited to approximately 500 individuals.

Learning from this experience, the Indonesian Department of Forestry (PHPA), the Indonesian Institute of Sciences (LIPI) and the Indonesian Zoological Parks Association (PKBSI) realize that collaboration is needed to obtain vital information, so that the viability of species can be conserved.

IUCN/CBSG's contribution in Indonesia is relatively recent. It began with the first Population and Habitat Viability Analysis (PHVA) workshop for Sumatran tigers held in November 1992 in Padang, West Sumatra. This workshop addressed how to assess the wild population and develop an effective management strategy, and it is used as a model to guide conservation in Indonesia. Subsequently, similar PHVA workshops and programs have been facilitated by CBSG for other species such as Asian elephants, Sumatran rhinos, white-winged wood ducks, orangutans, Javan gibbons, Javan hawk eagles, Komodo monitors and sea turtles.

The Sumatran Tiger PHVA organized by CBSG in Indonesia has been very useful in terms of encouraging wildlife conservation action in the country. Before 1991 the status of both the wild and captive Sumatran tiger populations were unknown.

CBSG Indonesia program has also provided some tools and methods for use in the census and survey of tigers across Sumatra as a pilot study in Way Kambas National Park.

Thus, the contributions of IUCN/SSC CBSG to Indonesian conservation will be to develop and sustain a conservation program in Indonesia that will ensure the long-term viability of Indonesian wildlife, to develop a captive management program for Sumatran tigers at ICREW and other PKBSI institutions, and to link these *in situ* and *ex situ* conservation activities for the reinforcement and recovery of wild populations. ■

Submitted by Jansen Manansang, CBSG Indonesia.

INDONESIA PROGRAM CBSG News

CBSG Mesoamerica Report

Workshops

Several workshops were organized in collaboration with CBSG:

Costa Rica

An Orchid CAMP was held at Simón Bolívar Zoo during 30 March to April. The 37 participants represented 10 different institutions and four national orchid associations. The workshop was supported by CBSG, Omaha's Henry Doorly Zoo and FUNDAZOO.

Cuba

Two Cuban institutions organized workshops during April:

- The National Botanical Gardens organized a Plant CAMP.
- Jardin Zoológico de La Havana organized a Cuban Native Animals CAMP III and the Conservation Analysis of La Havana Zoological Garden workshop.

Workshop Follow Up

It is very important to support the achievement of the goals of these workshops. We have been involved in the following projects proposed in the workshops held during the last year:

Orchid CAMP

Monthly meetings were held at Simón Bolívar Zoo, Costa Rica by a group of participants, who established the Commission for the Conservation of Costa Rican Endangered Orchids. A work strategy was defined, and they are organizing a national seminar to discuss and disseminate workshop results.

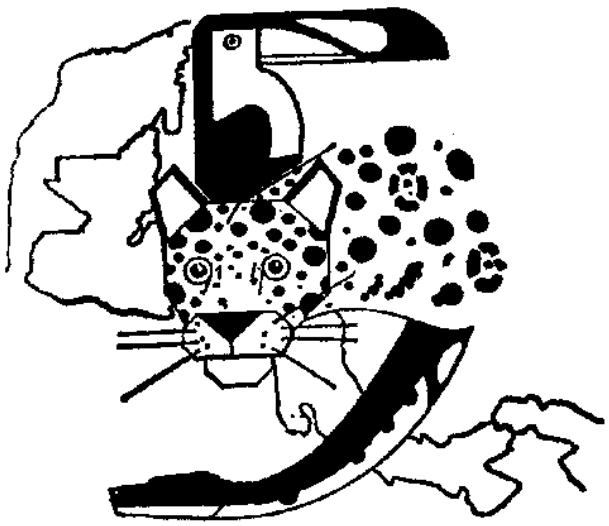
Costa Rican Squirrel Monkey PHVA

The Costa Rican squirrel monkey is one of the most endangered species of the region. Endemic to Costa Rican Central Pacific, its population is reduced and fragmented. A workshop to establish a conservation action plan is being organized, facilitated by CBSG.

Mesoamerican Felid CAMP

These actions took place as a result of the Felid CAMP:

- Felid studbooks were organized.
- A registrars workshop will be held next November, with the support of IUDZG -WZO, Saint Louis Zoo and FUNDAZOO.
- A proposal for a veterinarian workshop has been written and presented to several institutions.

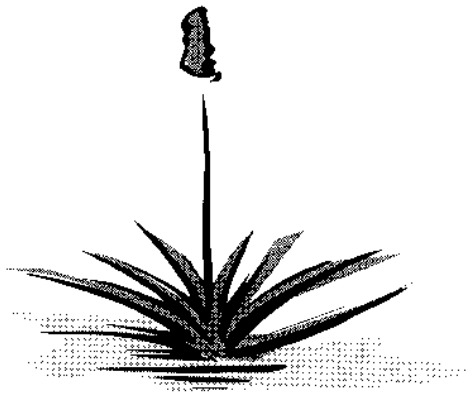


Other Meetings

The Costa Rican CITES Scientific Authority wants to have a CAMP to analyze the situation of species included in CITES Appendix I-II, and in the Costa Rican wildlife law.

We supported and participated in the II Conservation Education Congress organized by the Wildlife Conservation Society during 15-30 June. ■

Submitted by Yolanda Matamoros, AMACZOOA.



CBSG Sri Lanka Report

CBSG Sri Lanka was established on 18 October 1997 at the University of Peradeniya, Kandy, Sri Lanka, convened by Dr. Anslem deSilva. CBSG Sri Lanka has several active working groups:

- Veterinary Working Group: Chair, Vijitha Kuruvita, Professor of Veterinary Medicine and Dean of Faculty of Veterinary Medicine.
- Medicinal Plants Working Group: Chair, Lyn de Alwis, Consultant to the Zoological Survey Sri Lanka and Principal Coordinator and Project Executor of the WWF Project on Medicinal Plants of Sri Lanka.
- Elephant Working Group: Chair, Dr. Jayantha Jayawardane, Elephant Orphanage.
- Marine Invertebrates Working Group: Chair, Chin How Cheong, General Manager of Ceylon Grain Elevators.
- Invertebrates Working Group: Chair, Channa N.B. Bambaradeniya of the Department of Zoology, University of Peradeniya.
- Endemic Fish Breeding Working Group: Chair, M.P.B. Meegaskumbura of the Department of Zoology, University of Peradeniya.
- A working group on birds will be formed soon.

Activities to Date

- Four new stamps depicting endemic reptiles were launched during the inauguration of CBSG Sri Lanka.
- Publication of *Abhijanana*, (which means breeding in Sinhala, the language of Sri Lanka), journal of CBSG Sri Lanka.
- Publication of a news bulletin on invertebrates.
- Publication of news bulletin by the endemic fish breeding working group.

- Workshops and symposia on invertebrates were conducted.
- Many research projects (conservation and breeding oriented) on amphibians, reptiles, invertebrates, endemic fish and birds are in progress.
- Plans to establish a research and conservation breeding center for endangered amphibians and reptiles.

Future Activities of CBSG Sri Lanka

- CAMP workshop for amphibians and reptiles of Sri Lanka from 26 to 30 November 1998.
- CAMP workshop for medicinal plants of Sri Lanka in 1999.
- PHVA workshops for Asian elephant and Sri Lankan leopard by 2000.
- 4th World Congress of Herpetology in Sri Lanka, 2001. ■

Submitted by Anslem deSilva, CBSG Sri Lanka.

CBSG Regional Offices

CBSG, India:	Sally Walker, Zoo Outreach Organization (zooreach@giasmd01.vsnl.net.in)
CBSG Indonesia:	Jansen Manansang, Taman Safari Indonesia (safari@indo.net.id)
CBSG Japan:	Hiroshi Hori (hori@azabu-u.ac.jp)
CBSG Mesoamerica:	Yolanda Matamoros, Simón Bolívar Zoo (fundazoo@sol.racsa.co.cr)
CBSG Mexico:	Amy Camacho, Africam Safari (azcarm@noc.pue.udlap.mx)
CBSG Sri Lanka:	Anslem deSilva, University of Peradeniya (anslem@med.pdn.ac.lk)

Carnivore Working Group Report

Purposes

1. To discuss the facts regarding artificial breeding of cheetahs and clarify causes of death from disease.
2. To discuss a strategy to preserve genetic diversity in the captive red panda population.
3. To discuss research on the Tsushima wildcat raised in captivity to clarify its ecology.

Cheetah

Objective: Preservation of genetic diversity in cheetahs raised in captivity (formation of self-sustaining groups).

1. Clarification of causes of disease, and establishment of treatment methods.
2. Establishment of artificial breeding techniques (clarification of breeding physiology; artificial insemination).

Problems

There are 1,217 cheetahs in the world registered as being raised in captivity. Of these 73% were born and bred in captivity. Worldwide there is a trend toward reduction in breeding capabilities.

Disease. Since many cheetahs die of kidney failure (20 specimens died in Japan, 1997), at present this problem is being researched in cooperation with Azabu University. The cause of death is that helicobacter cause gastritis which leads to chronic nephritis. This disease tends to occur in zoos which have groups of animals. Wild cheetahs have been found to include carriers of this disease, but do not develop the disease itself. Even in captivity this disease does not occur in the founders, but only in animals that were born in captivity. Since methods of prevention and treatment have not yet been established, it is urgent to find countermeasures against this disease.

Artificial breeding. Since birth rates and rearing rates are low, and there are few founders, it is not possible to increase the number of individuals only through natural breeding. For this reason it is necessary to establish artificial breeding techniques which make maximum use of founders and potential founders.

Specific Measures

1. In order to reduce deaths due to kidney failure, current research in progress in cooperation with universities should be accelerated, and prevention and treatment methods should be established quickly. To this end, contact has been established with the SSP. Treatment that has been carried out in the U.S. will be attempted in Japan.
2. In July 1998, artificial insemination was carried out at Gumma Safari Park using fresh semen in a female that had been subjected to hormone treatment, and birth is expected by late October. Artificial insemination will be attempted in November at Himeji Central Park using fresh semen.
3. To promote natural breeding, two females at Nanki Shirahama Adventure World will be temporarily separated from their 11-month-old cubs for breeding. Artificial insemination will be attempted in females that have not bred naturally.
4. Since collection and cryopreservation of semen are already being carried out at Himeji Central Park, Gumma Safari Park and Adventure World, this semen will be moved around and thawed out in Japan, with a view to future international exchange of frozen semen.

Red Panda

Objective: Maintenance of genetic diversity in captive animals.

1. Movement of individuals based on pedigree management.
2. Establishment of artificial breeding techniques.

Problems

In Japan there are 218 red pandas registered, with high founder representation of specific pairs and many potential founders. Since about half of the animals that are in captivity worldwide are in Japan, Japan must play a central role in the preservation of this species in captivity, and exchange of individuals with other countries such as the U.S. and China is necessary. Before animals can be exchanged with other countries, it is necessary to inoculate them with inactivated distemper vaccine, but this vaccine is hard to obtain, leading to quarantine problems that make exchange difficult. Transponder use should be promoted.

Specific Measures

1. Movement of individuals based on pedigree management.
2. Movement of individuals within Japan based on pedigree management should be accelerated to form new pairs, particularly for individuals that are contributing little in the population. It is necessary not only to move animals around within Japan but also to exchange them with other countries, particularly the U.S. and China. The procurement and use of safe and

effective vaccines is an issue of concern and is being pursued consultation with the U.S.
3. Before animals can be exchanged with China, it will be necessary to clarify the pedigrees of individuals from China. China once registered its animals in the international studbook, but they no longer do this. In the past China's regional studbook was published at the Tientsin Zoo but it is now done by CAZG. Regarding Chinese participation in international pedigree registration, the Red Panda International Pedigree Registrar has already asked the Tientsin Zoo to do this, and this request is being repeated.
4. Establishment of artificial breeding techniques.
5. In order to make effective use of potential founders it is necessary to clarify the physiology of breeding. The following are examples of current steps being taken: a) observation and analysis of breeding activity; b) semen collection from living animals; c) gamete collection from dead animals; and d) quantitative analysis of steroid hormones in feces and blood.

Tsushima Cat

Objective: Preservation of captive populations.
1. Rapid introduction of females from the wild.
2. Establishment of techniques for captive breeding.

Problems

1. Viral diseases have been confirmed to exist in Tsushima cats in the wild. It is believed that the source of infection is feral domestic cats on the islands.
2. Fukuoka Municipal Zoo, which has facilities for keeping Tsushima cats, has only five holding pens, three of which are already occupied by males; it is desirable to have facilities for females.

Specific Measures

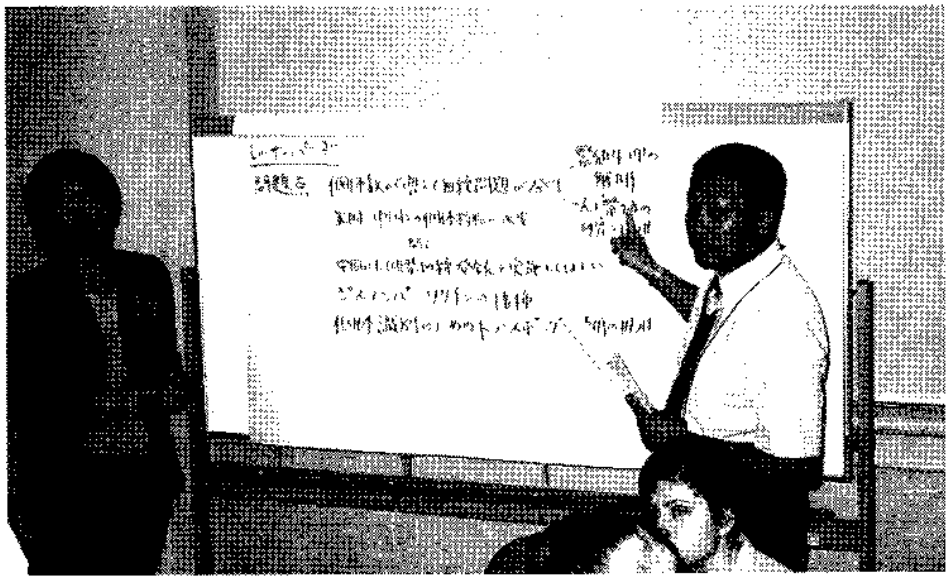
Rapid clarification of breeding physiology. Males that are now given only routine examinations and then released should have semen collection; this will contribute to clarifying breeding physiology and preservation of gametes. In addition, individuals that have been killed in traffic accidents should have their gametes recovered and preserved.

Increase of captive facilities. In August 1997 the Japan Environment Agency established the Wildlife Conservation Center of Tsushima. Rescued cats are housed there temporarily and rehabilitated with a view to releasing them in the future.

SSCJ proposal. Susumu Koga, JAZGA Tsushima Cat Coordinator and Studbook Keeper of the Fukuoka Municipal Zoo, has proposed to the Japan Environment Agency that gametes be recovered and preserved from animals that are released or have died. In addition, zoos that are affiliated with JAZGA have been requested to disperse animals if the number of individuals in captivity increases in the future.

Measures against disease. Domestic cats that have gone wild on the islands should be captured and eradicated. In addition, if a wildcat that is captured is found to carry a viral disease, it should be isolated in captivity at the Wildlife Conservation Center of Tsushima, which is equipped to prevent the spread of diseases, and not released thereafter. ■

Submitted by Teruaki Hayashi, Nanki Shirahama Adventure World.



Teruaki Hayashi facilitating the Carnivore Working Group.

Primate Working Group Report

Chimpanzee

In Japan there are currently 338 chimpanzees in 57 facilities, 46 of which are members of JAZGA. Five zoos have more than 10 chimpanzees. Additional spaces for chimpanzees will not be created. JAZGA does not want more chimpanzees, but some believe that AI is needed for keeping genetic diversity, establishing methods that can be adapted to other species.

There was a discussion about laboratories that do not belong to JAZGA. If JAZGA imposes their severe standards these labs will hide their real information. We suspect that captive individuals in labs might be used for infectious disease research.

Gorilla

Presently, 38 individuals are kept in 17 institutions in Japan. There has been no breeding since 1988. These animals are aging, so we need more effort to establish an effective breeding population. The Japanese captive population consists of many wild-caught animals and is genetically significant. We need sustain this gene diversity. Participants from EEP commented they would support breeding efforts of the Japanese zoo community, and suggested the following statement for support of a gorilla breeding program.

Recognizing ...

- *that the gorilla is a highly significant species in respect to conservation, education and research;*
- *that the status of the species in the wild is such that export from Africa is no longer acceptable;*
- *that gorillas held in Japanese zoos are genetically significant but are part of an aging population; and*
- *the role these animals could play in management of a globally sustainable captive gorilla population;*

The CBSG calls on Japanese zoos to act cooperatively in the management of gorillas by considering issues of population management above ownership.

Specifically the CBSG endorses ...

- *any effort to form effective social groupings of gorillas through exchange between Japanese zoos;*
- *the development, by Japanese zoos, of an on-going breeding program that would operate independently, but in partnership with the other successful management programs operated by the EEP and SSP.* ■

Submitted by Shigetaka Kodera, Japan Monkey Center.

Marine Mammal Working Group Report

Until now adequate results have not been obtained with regard to captive breeding of cetaceans, particularly bottlenosed dolphins. Consequently, discussions were held on the following topics to clarify the problems of keeping cetaceans in captivity, with the aim of improving breeding, raising and training of cetaceans.

Health Care

A number of factors are important in maintaining the breeding activity of cetaceans, including healthy, sexually mature animals kept at the appropriate sex ratio. However, looking at the mortality rate of captive cetaceans in Japan, it is clear that measures taken thus far are not enough. In particular, improvement is needed in the quality of the trainers. The JAZGA has made efforts to improve trainer quality by holding training sessions and by publishing a mammals care handbook, but greater efforts are needed. Group study sessions for trainers should be held (these sessions have been proposed by the Suma Beach Aquarium).

Effect of Touching and Swimming with Dolphins

The number of zoos and aquariums studying this topic has increased rapidly. It is necessary to determine the present situation; seek improvement where there is a problem; and ensure that breeding of cetaceans is not affected and that humans are not harmed. A survey is being conducted by Hakkeijima Sea Paradise.

Establishment of Breeding Pools

In order to promote breeding, it is desirable to establish breeding pools. A survey is being conducted on this topic by JAZGA and the Marine Mammals Specialists Study Society.

Artificial Insemination

In Japan there have been examples of successful collection and preservation of semen, and one instance of sperm injection. There are more problems with females, mainly relating to their menstrual cycle, than with males. We hope to clarify these questions through cooperation with the JAZGA Techniques Subgroup. ■

Submitted by Asami Fujimoto, Enoshima Aquarium.

Marsupial Working Group Report

Koala Subspecies

In Japan, the number of New South Wales koalas *Phascolarctos cinereus cinereus* (NSW) is decreasing, while the Queensland koalas *P.c. acustus* (QID) are multiplying normally. Victoria koalas *P.c. adustus* (VIC) are in the same condition as NSW koalas. When koalas were first presented from Australia, interbreeding among the three subspecies was prohibited. However, in both Australia and Japan DNA tests have shown that there is no difference between the NSW and QID subspecies. Accordingly, if permission to interbreed the NSW and QID koalas is received, a new breeding plan can be established.

This matter has been researched and studied by Dr. Brouwyn Houlden of Zoological Parks Board of NSW. The Monotreme and Marsupial TAG recognizes and recommends that captive koalas should be divided into two subspecies at south of 35° latitude, the Victorian and South Australian koalas, *Phascolarctos cinereus(Southern race)* and the Queensland and NSW koalas, *Phascolarctos cinereus(Northern Race)*. They are now waiting for its final acceptance.

Import Procedure for Koalas

Christine Hopkins introduced the new "Ambassador Species" agreements described at the 1997 CBSG Annual Meeting, for reference. These agreements deal with the koala, the Tasmanian devil, and the wombat. Nothing is stated about koala subspecies. At present the Australian Government prohibits the export of wild animals. Only export for the purpose of scientific research is permitted, but it takes a very long time to obtain an export permit, so these agreements were prepared to permit smoother exports.

The reasons why export of wild animals has been prohibited include the following:

1. Treatment of Australian animals in overseas zoos was inhumane.
2. When there was no cooperation among overseas zoos, each zoo did as it pleased.

In the case of animals which are representative of Australia, a special procedure has become necessary to obtain an export permit.

Reshuffling Among Overseas Zoos

In the case of the important species listed above, the Australian Government requests that a procedure be followed prior to reshuffling among zoos. In the case of zoos that have koalas, some reshuffling is essential to preserve the species. However, the Australian Government still insists on being kept informed so that it can keep track of them.

Should an animal leave Australia, it is difficult for the Australian Government to keep track of it, so it is requested that each importing country keep a regional studbook of all animals within its jurisdiction.

In Japan, all koalas are recorded in the JAZGA studbook, in accordance with the wish of the Australian Government. It is desirable for the birth date of each marsupial to be recorded. Until now, standards have varied among zoos. From now on, it is hoped that the data recorded in the written report on the birth of each marsupial immediately following the announcement will be referred to, and data for the purpose of analogy should be standardized.

In order for the Australian Government to permit the breeding of koalas, the following items are necessary. These must be obtained by the zoo that directly imported the koalas from Australia:

- An Approved Zoo certificate from the Australian Government
- The Ambassador Species Agreement
- A report on the Husbandry Conditions ■

Submitted by Eisuke Kashima, Nagoya Higashiyama Zoo.

Stork, Ibis and Spoonbill Working Group Report

The working focused on the Oriental white stork, black-faced spoonbill, and crested ibis, all of which used to live in Japan in many numbers.

Oriental White Stork

Current Status: 11 pairs in Japan, one pair in Europe, four pairs in China.

Problems

Founders

- We investigated the maternal line by mtDNA and found many birds from the same maternal line.
- New bloodlines need to be introduced from different regions to compensate for the lack of founders.

Pairing difficulties

- It is difficult for the birds to form pairs.
- There is a lack of adequate behavioral study.
- Successful pairing procedures are not established.

Husbandry quality

- Breeding results have been poor.

Solutions

Founders

- Check genetic relationship on maternal and paternal sides on the birds in Japan.
- Make decisions on the management of birds that cannot be treated as true founders.
- Let the successful pairs rear eggs from other pairs.
- Regard surplus birds as potential for reintroduction.
- Use surplus birds as exhibit animals for education.

Pairing

- Improve observation techniques.
- Establish the pairing techniques.

Husbandry

- Prepare husbandry guidelines, including holding after successful breeding and spaces for exhibit only.

Action Plans

Founders

- Perform genetic analysis to establish maternal lineage.
- Obtain information regarding available techniques for genetic analysis to establish paternal lineage.
- Check genetic relationship of birds at Vogelpark.

Pairing

- Improve observation and analyze results.

Husbandry

- Prepare husbandry manual by spring 1999.

Black-Faced Spoonbill

Current Status: Only captive population of nine birds at Tama Zoological Park.

Problems

Found many similarities with Oriental white stork.

- Poor rearing success and small captive population.
- Genetic relationship of founders is not understood.
- Birds are kept in a mixed-species aviary with other ibises, possibly leading to use of unsuitable nest sites.

Solutions

1. Increase captive population size – remove eggs for artificial incubation and promotion of second clutch.
2. Genetic analysis.
3. Remove birds from a mixed-species environment.

Action Plans

- Increase the captive population size – obtain and use information on hand-rearing techniques.
- Genetic analysis using the same method as that for Oriental white storks.
- Improve husbandry – reevaluate the future plans for facilities at Tama Zoo.
- Move toward a regional collection plan – begin a network with people from conservation organizations, ornithologists, and breeding specialists.

Crested Ibis

Current Status: Only one captive bird in Japan at Sado Ibis Conservation Center, despite decades of time investment and effort for breeding using related species.

Problem

- Reintroduce birds from Japanese zoos.

Solutions

- Zoos, especially those with extensive ibis breeding experience, must be involved in the breeding and conservation of the crested ibis.
- Japanese zoos must announce their readiness to deal with crested ibis husbandry and conservation.
- Import Chinese birds to Japanese zoos.
- Import eggs from China to Japan.

Action Plan

- Form a committee for crested ibis conservation with a regional collection plan in mind.
- Attend the 1999 conference in China to impress the presence of the Japanese zoo community. ■

Submitted by Kazuaki Niippashi, Saitama Childrens Zoo.

Invertebrate Working Group Report

Regional Working Groups

The working group focused its discussions on the ongoing need to further develop the regional working group support network. This action remains a key priority if the group is to fulfil its conservation remit. Well-developed regional groups are currently in existence for Europe, North America and India.

The meeting welcomed the news that regional groups are currently in the process of being established for Australasia and Africa/Middle East. It was agreed that all efforts should be made to support their further development.

The current situation in Japan was discussed and it was agreed that, to a large extent, existing databases such as maintained by the Japanese Communication Group of Insectaria and JAZGA have the potential to provide the data needed for developing an effective regional group. The work of Tama Zoo in compiling a significant database of living invertebrate collections in Japan was reviewed and acknowledged as already providing much of the necessary data on the Japanese zoo community. It was agreed that Tama Zoo would lead efforts to further investigate the potential of using existing Japanese invertebrate databases and organizations to compile a comprehensive database. It is hoped that such a database will greatly assist existing conservation efforts within the region as well as being of great value to international colleagues.

The group also discussed the current lack of regional group coverage for the Central and Southern American region. It was agreed that efforts should be made to gather as much data as possible on invertebrate workers and facilities within this region. Yolanda Matamoros agreed to gather what data are known. A similar gap was identified for the countries within the SEAZA region. Addressing this gap was agreed as being a priority action need for the next year.

Regional Directories

Progress toward the completion of the regional directories of invertebrate specialists and organizations was reviewed. The completed directory of India was reviewed, and it was agreed that methodology employed by Zoo Outreach Organisation provided a valuable model for other regions. The recent questionnaire to all EAZA members was also reviewed and agreed to be useful guide for similar surveys in other regions.

Other Matters

The group agreed that the conservation needs of marine invertebrates would be best covered by increased future participation of aquarium specialists.

Agreed action priorities over the coming year:

1. Focus efforts on further developing the regional group support structure, which will entail:
   a. Continued development of existing working groups within AZA, EAZA, ARAZPA, Indian and African/Middle Eastern regions.
   b. Further investigate existing databases in the Japanese region.
   c. Examine the feasibility of establishing a zoo-based regional working group to cover the SEAZA countries with the shared remit of strengthening current links between the zoo, museum and university invertebrate communities.
   d) Conduct the same feasibility investigation for the Central and South American region.

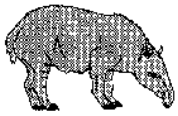
2. Continue efforts to compile a comprehensive global directory/network of invertebrate specialists, groups and organizations, and make this information readily available to all regional group colleagues.

3. Produce a quarterly progress update for colleagues to assist ongoing development efforts. ■

Submitted by Hiroshige Takaie, Tama Zoological Park, and Paul Pearce-Kelly, London Zoo.

Invertebrate working group at CBSG annual meeting.

Ungulate Working Group Report



Malayan Tapir

The status of this species in the wild is not known. Important topics include increasing the number of zoos holding tapirs, forming pairs and recombining pairs.

Mountain Tapir

A Colombian zoo official discussed the situation of protection and breeding of the mountain tapir in Colombia. Funds and cooperation are being sought.

Japanese Serow

Inbreeding should be eliminated. Pair formation should be promoted. Since this animal is difficult to keep in captivity, a zoo handbook has been prepared.

Black Rhinoceros

A special report was given by Mr. Otsu of the Hiroshima Municipal Asa Zoo.

White Rhinoceros

Breeding plans were discussed. A major problem is the lack of experience in breeding this species in Japan. Many zoos have only one male and one female. Where possible white rhinoceros should be kept in groups in spacious parks; urban zoo directors are advised to keep each black rhinoceros in a pair. The number of animals should be increased, and the inbreeding problem needs to be solved, not ignored. There should be no misunderstanding on this point.

Indian Rhinoceros

In Japan there are only four males and two females. Major problems are to increase both the number of zoos keeping these animals and to increase the number of animals. The objective is a self-contained system with five zoos and 15 animals.

African Elephant

A studbook for Japan has finally been completed. There are 13 males and 55 females (total of 68) in 27 zoos. Among these, five animals are breeding individuals. There are too few breeding males. Research on artificial insemination is being considered.

Hartman Mountain Zebra

There are six males and 14 females in five zoos. There is a need to increase the number of animals. ■

Submitted by Hirokuni Kimura, Yokohama Zoo.

Genome Resource Banking Working Group Report

Problems

- Collection and storage of samples
- Gene banking plan
- Research implementation
- Procurement of research funds
- Ownership rights to gametes
- Establishment of an organization for organ storage

Actions to Resolve Problems

Storage of Samples

- Categories to be collected
  Genes: All categories
  Gametes: Registered categories
  Discussions, coordination, and collection should be made in liaison with each species coordinators.
- Sites at which collection is to be made
  Genes: From body organs, reproductive cells, DNA, etc. to be stored separately at multiple stations at -20 °C or below.
  Gametes: Storage of eggs is difficult and is a topic of on-going research. At present, consideration will be given only to the storage of sperm. However, the collection of ovaries will take place.

Gene Banking Plan

Gene banking will take place at multiple sites in order to counteract any physical problems that may occur. At present, negotiations are under way with national research institutions and universities. Expectations are focused on the new breeding center Yokohama Zoological Gardens. Possibilities for implementation also are present at existing zoological gardens and aquariums. The preservation of sperm has already commenced in collaboration with universities.

Implementation of Research

The implementation of analyses of genetic diversity and artificial breeding.

- The investigation of genetic diversity in the snow leopard, which is a rare species, is scheduled to begin in collaboration with universities.
- There has been first successful breeding of chimpanzee by means of frozen stored sperm that was extracted after the death of a specimen.

Procurement of Research Funds

Researchers and research facilities with the same objectives should cooperate to undertake research. Efforts should be made by JAZGA to develop an

organization that can be accepted to receive financial assistance. The learning cost should be also considered.

Ownership Rights to Stored Organs and Gametes
Organs: Ownership is entrusted to JAZGA
Gametes: Two options are available:

- To rely on breeding loans
- To abandon ownership rights

Establishment of an Organization for Organ Storage
The key stations should initially be in Kanto and Kansai; thereafter, branch stations should be spread widely. ■

Submitted by Isao Munechika, Chiba Zoological Park.

Reintroduction Working Group Report

The opinion was voiced that a common recognition of the concept of reintroduction to the wild would be desirable. The concept of reintroduction to the wild held by the Japanese is quite broad and includes reinforcement. In this working group, it was proposed to limit the topic to reintroduction. A topic was proposed on the reintroduction of native Japanese freshwater fish to the wild; however, as the content of the discussion progressed it appeared to depart somewhat from the definition above. This is where basic training regarding reintroduction became necessary.

The following points should be considered in connection with reintroduction to the wild:
1. The purpose of reintroduction to the wild should be clearly formulated.
2. It will be essential to understand the advantage of reintroduction to the wild.
3. Care should be taken to prevent pathogens acquired in captivity to be brought into the wild.
4. Genetic analyses should be carried out.
5. The cooperation of local residents is essential.

It will be desirable to shift to a consideration of specific cases based on the above points. The example of the reintroduction to the wild of the yellow-foot rock wallaby was cited; however, objections were raised regarding the method of eliminating the threat to the wallaby (poisoning of rabbits and foxes and shooting of goats). A re-recognition was made of the different approaches applied by Japan and other countries.

There was a report on activities to conserve the Western swamp tortoise in Australia. However, it was pointed out that this case probably does not concern reintroduction but rather reinforcement, which underscores the necessity for a reaffirmation of the strict distinction between the two concepts. For the sake of promoting discussion, reinforcement was recognized as being more important in the sense that it can prevent extinction. The afternoon saw discussions to again clarify difficult issues.

Reintroduction of Storks in Toyooka City
Problem.
JAZGA cannot participate in the program activities. They need to persuade local residents
Reason.
The local residents want to use agricultural chemicals; negotiations to request them to forgo the use of chemicals are encountering difficulty.
Measures to resolve problem.
It would be best to create an environment that encourages cooperation leading to conservation rather than being in opposition with the local residents. Another method would be to develop an NGO that enrolls the local residents.

Management of Declining Species
Problem.
What is the right stage at which to make decisions?
Reason.
Confusion is caused by the fact that there are a variety of cases and appropriate responses.
Measures to resolve problem.
Something should be done soon, without delay, if the species is rare. Even in other cases, something should be undertaken as soon as possible because time is required to establish husbandry and breeding techniques.

Problem.
When a group of animals whose habitats are in separate regions is threatened with extinction in one region, is it permissible to introduce members of the species (taxon) from other regions?
Reason.
There is an argument that even if the number of animals living in one region is declining, it may not be necessary to do something when there is no problem in other regions.
Measures to resolve problem.
It would be best to do something about the problem if conservation would be completely meaningful.

Avoiding Introduction of Pathogens from Captivity to Wild
Problem.
A white-tailed eagle was protected, and it was confirmed that no drug-resistant bacteria were present in the specimen. Thereafter, the specimen was released into the wild. When it was recovered, drug-resistant bacteria were found.
Reason.
The principle was adhered to of avoiding the introduction of pathogens into the wild from specimens raised in captivity.
Measures to resolve problems.
If there were no problem of co-existence with resistant bacteria in the wild, there would be no need to insist on this principle.

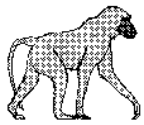
Activities to Conserve Blakistons' Fish-Owl
Problem.
Is it permissible to introduce wild-bred specimens into breeding groups in the interest of preventing the extinction of the species?
Reason.
Japanese laws and systems pose a barrier to such activities.
Measures to resolve problem.
Work urgently to establish the proper conditions in Japan.

The concept of reintroduction was reaffirmed as the final conclusion of the exchange of opinions. It then became clear that a number of mutually divergent views still exist; therefore, the following points were raised as future topics and targets:

1. The creation of new guidelines within Japan.
2. The selection and determination of species to be conserved.
3. The establishment of an advisory board of conservation/protection.
4. Information and personnel exchanges with overseas researchers and research institutions are required. ■

Submitted by Yoshiharu Shimura, Kushiro Zoo.

Behavior Working Group Report



Objective

To activate animal behavior by arranging the environment of enclosures in accordance with the characteristics of the animal species.

Scope of Environmental Enrichment

1. Hardware aspect: to establish proper facilities at enclosures.
2. Software aspect: to induce the species to behave in its natural patterns, including feeding method.

Examples of Past Cases

1. Ecological exhibition, including ways to promote natural foraging behavior.
2. Provision of a variety of toys for great apes.
3. Application of special feeding techniques to encourage hunting behavior in carnivorous species.
4. Installation of toys for ungulates as well as trees and rocks so that ungulates can engage in body rubbing.
5. Improvement of feeding techniques to suit the characteristics of foraging behavior.

Problems Connected with Raising Quality of Life

1. Human beings are involved in using facilities and devising various special techniques. It is desirable to raise morale at the sites of current activities. To accomplish this, it will be necessary to foster a clear understanding of the meaning of "enrichment," to collect information/data on the behavior patterns of wild animals, and to encourage people to raise their own consciousness and awareness.
2. There is inadequate promotion of a systematic approach to environment enrichment.
   a. There should be consensus of opinions among management, staff and design offices.
   b. The importance of expanding records on animal behavior in captivity and storing them as public records should be recognized.
   c. Efforts will be made to continue the approach, including personnel assignments.
3. Efforts will be made to eliminate misconceptions on the part of visitors toward environmental enrichment.
   a. Efforts to spread awareness and education among visitors.
   b. The media should be used for this purpose.
4. Husbandry is not being carried out in accordance with the characteristics of animals, such as group captivity.

5. More effort should be made to devise effective funding methods; advantage should be taken of all opportunities
6. At present, objective evaluation methods to determine the extent of enrichment is not adequate.

Future Approach

This appears to be the first time in Japan that a committee is examining environmental enrichment. In keeping with the CBSG spirit, the following approach will be carried out based on everyone making their best efforts at each site.
1. Sharing of information collected domestically and from overseas; collection and reporting of examples of enrichment; purchase of related periodicals.
2. Attendance at related research meetings, including research conferences of technical experts of zoological gardens, etc.; sending announcements and articles to zoological and aquarium-oriented periodicals; active use of a home page on the Internet.
3. Establishment of objective evaluation methods:
   a. Attitude survey of visitors/users
   b. Promotion of joint research with research institutions. ■

Submitted by Mitsuko Masui, Azabu University.

Education Working Group Report

Zoo and aquarium education, with particular reference to Japanese zoos and aquariums, was the subject matter of the Education Working Group.

The group selected the following objectives or problems for discussion:
1. How to provide education to different generations and target audiences;
2. How to train zoo and aquarium personnel in charge of education in advanced educational skills; and
3. How to develop a consensus among Japanese zoo personnel that education should be a priority objective of zoos and aquariums.

The group ascertained that the major obstacles to forwarding zoo and aquarium education in Japan could be attributed to a lack of agreement on the degree of its importance among zoological personnel themselves. The need for a dedicated Education Department and staff for every zoological institution open to the public was stressed by the group.

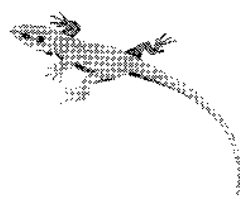
Some specific problems were discussed. The existing interaction with school teachers by zoo personnel is not sufficient, and closer teamwork between zoos and school teachers is required. The potential effectiveness of zoos and aquaria for education is not acknowledged and, thus, has not been designated in the course of study by the Ministry of Education. Also, there are few practical training systems in zoos and aquaria for school teachers. Finally, education is a profession and zoo education a specialized subject within education, requiring special skills and training for zoo personnel in charge of education at zoological institutions. At present the facilities and training for developing these specialized skills is insufficient both for educators and for animal husbandry personnel who could provide educational input to visitors.

Scheme for Problem Solution

For improvement and enrichment of educational activities in zoos and aquariums under various conditions, it is necessary to communicate the advantages or benefits of educational activities in zoos and aquariums to decision-makers charged with management of each institution, and to the general public. The following are some benefits of zoo and aquarium education. Some of these "benefits" are actually necessities in today's modern world.

Benefits of Zoo and Aquarium Education

1. Education can be fun, or sufficiently enjoyable in order to attract the attention of visitors, stimulate their intellectual curiosity and satisfy their recreational needs simultaneously.
2. Accurate information can be provided so that a high quality education experience is available to the public.
3. High quality educational programs attract visitors and will result in more zoo and aquarium enthusiasts and repeat visits.
4. Zoo and aquarium education is useful for individual development, e.g. to improve knowledge and ability and to arouse interest and observation skills.
5. Conservation education can be prioritized and carried out with maximum effectiveness with living animals as conservation ambassadors.



6. Effective conservation and environmental education can be structured to change visitor attitudes and behavior toward animals and the environment.

Specific Actions to be Taken

1. This working group report should be disseminated widely to decision-makers in zoos and aquariums in Japan as well as policy makers in government.
2. A report should be submitted to the Ministry of Education reflecting the necessity of educational activities in zoos and aquariums and of programming them into the course of study (particularly elementary education).
3. A system for training personnel in charge of education in zoos and aquariums should be undertaken.
4. Research is needed on visitor attitudes and effectiveness of educational techniques in zoos and aquariums.
5. The necessity of providing facilities (building and equipment) for education should be stressed.
6. A database of educational software for zoos and aquariums should be compiled.
7. The setting up of an Educational Planning and Management committee in each zoological institution should be encouraged.
8. An increase in budget allocation for education programs should be given.

Sally Walker commented on the Japanese Association of Zoological Garden and Aquarium Educators (JAZAE), stating that it is the only zoo educator association in Asia. JAZAE is now 24 years old and joined by 166 individual members and 10 organizations. This association and its combined expertise can be used by the Japanese zoo community to help address some of the problems. ■

Submitted by Sally Walker, Zoo Outreach Organization, CBSG, India.

Conservation Assessment and Management Plan Update

The Conservation Assessment and Management Plan (CAMP) process is designed to evaluate the status, both in the wild and in captivity, of a group of species or the species of a particular region, to assign IUCN Red List Threat categories and to make research and management recommendations. We have conducted over 40 CAMP work-shops and these resulting documents contain valuable information about a wide range of species. However, as with all CBSG processes, the CAMP is continually evolving and I would like to update you on some of the most recent and significant changes.

1. We are producing a new manual for CAMP convenors to assist in all aspects of organizing and conducting a CAMP workshop. This manual will include a checklist and guidelines to lead the organizer from choosing a location to publishing the report.

2. New taxon data sheets are in use. These are more comprehensive and call for more detailed information and specific recommendations than the earlier version. The new format and data requirements assist in assignment of IUCN categories of threat and result in more complete CAMP reports.

3. The most significant and exciting development is the new computerized CAMP data entry program. We currently have great data in the CAMP reports but this information is not in a useful, accessible form. This problem has been recognized for a long time and with the help of Kevin Johnson in the ARAZPA office, Mariska Kuus, an intern from the Van Hall institute in Holland, and John Williams in the U.S., we have made real progress. The new application operates within Microsoft Access 97, part of Microsoft's Office 97 Professional Suite of programs. This program is both specific and flexible, allowing detailed information to be entered and a wide variety of queries to be made. Advantages of this computerized system over the paper taxon data sheets are that:

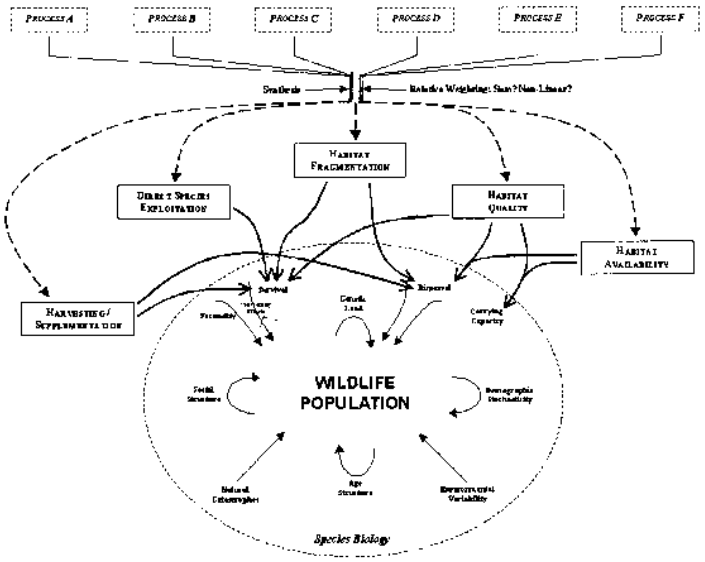
1) reports can be rapidly and accurately produced;
2) it facilitates the link of CAMP information to global systems such as REGASP; and
3) it allows easy access to CAMP information by the zoo community, making it possible for this information to be used for decision-making in regard to collection planning and resource allocation.

We are excited about the progress we are making with the CAMP program and the possibilities it offers for dissemination of valuable information on species around the world. ■

Submitted by Onnie Byers, CBSG.

An Update on CBSG's Initiative to Integrate Human Population Information into the PHVA Risk Assessment Process

Endangered species risk assessment is most commonly accomplished through a technique known as population viability analysis, or PVA. In this process, data on the demographic and genetic characteristics of the species or population in question are assembled and a computer model is generally used to project the future growth dynamics of the resulting simulated population under any number of proposed conditions. This type of "traditional" approach focuses almost solely on the biology of the target wildlife species/ population with only some relatively vague, qualitative description of the means by which human activities – namely direct species exploitation and local environment exploitation – impact these growth dynamics.



Mechanisms by which human processes can influence wildlife populations.

In contrast to this standard approach, the Conservation Breeding Specialist Group (CBSG) of the IUCN's Species Survival Commission has developed an alternative to the traditional PVA approach. CBSG's non-traditional approach, known as a Population and Habitat Viability Assessment or PHVA, is an intense species risk assessment process involving diverse participation by all interested parties showing a stake in the development of management plans for the species or population in question. A PHVA represents a broadening of the traditional methodology to incorporate as much information as possible on the focal species, its habitat, and the ways in which local human populations impact this focal species and its surroundings. CBSG and their collaborators are refining this approach further to provide an explicit interface through which detailed data on local resource utilization by human populations can be translated into information suitable for demographic and genetic modeling of wildlife population viability.

We are developing a collaborative Strategic Research Network, led by Dr. Frances Westley (McGill University, Montreal) and Dr. Harrie Vredenburg (University of Calgary), to bring together a number of researchers with expertise in human demography, sociology, anthropology, and population biology. Through periodic Network meetings, we have discussed a number of issues critically relevant to the successful integration of knowledge of human population processes and wildlife population risk assessment. Additionally, we have targeted a series of PHVA workshops as ones in which this expanded process is to be implemented. To date, we have incorporated this expanded process in workshops for the mountain gorilla (Uganda), Peary caribou (Canada), muriqui (Brazil), and the tree kangaroos of Papua New Guinea. While we have not been as successful at this integration as we would like, we are improving at each step of the way and look forward to additional "experiments" in the near future. Our next implementation of this expanded process will be at the Eastern Slopes Grizzly Bear PHVA in Alberta, Canada in January 1999. In addition, Drs. Westley and Vredenburg are working with Ulie Seal and the rest of the Network members to produce a book detailing the elements of an expanded process, with case studies drawn from each of the workshops mentioned above. We will keep you up-to-date on our progress in this exciting new initiative. ■

Submitted by Phil Miller, CBSG.

International Conservation Updates and Issues

Earlier this year the first global list of threatened plants was published by IUCN. It indicated that about 34,000 of the 270,000 species of vascular plants were threatened with extinction. Some findings were startling: 30% of the 16,000 species in the United States were considered threatened. The dipterocarps showed about a third of the species threatened. About 75% of the yew family were found to be threatened.

This list, compiled by experts around the world, was based on the original IUCN system for classifying species under threat of extinction. Later in 1998, the first list of threatened species of trees was published, using the new Red List criteria developed by Georgina Mace and many colleagues and previously used in the 1996 Red List for animal species. In this compilation, 8,750 species of some 80,000 species of trees were found to be threatened. Only a small number of these species were in protected areas or situations under conservation management.

The Biodiversity Conservation Information System is under development by IUCN to respond to needs evident in the context of the Convention on Biodiversity. A more detailed data base for species is also under development by Species Survival Commission volunteers to handle species information that is now maintained in isolation and is not within the compass of the World Conservation Monitoring Center.

Among topics of global conservation significance, in addition to the problems of habitat fragmentation and invasive species, is sustainable use of wild species, whether consumptive or non-consumptive. A regionalized volunteer network, SSC's Sustainable Use Specialist Group, is developing analytical and communications approaches to sustainability on the basis of experience in 13 regions. A model that considers supply, demand, and control factors is emerging, but needs to be tempered by integration of major environmental and social factors in the equation. SUSG chairman Marshall Murphee of Zimbabwe is advocating more devolution of authority and enhancement of positive incentives to make local attempts at attaining sustainability more likely of success. A basic policy statement reflecting the considerations above will soon be sent to all member organizations of IUCN.

The important global problem being addressed by SSC's Declining Amphibian Population Task Force is more evident than ever in the highlands of Central and South America. Recent fieldwork in Panama by herpetologist Karen Lips, ecotoxicologist Val Beasley, and pathologist David Green turned up no new clues as to what has been happening. However, NASA atmospheric profiles show an astonishing amount and diversity of pollutants that presumably fall on the mountain forests where the most severe losses of populations and species have occurred. Recently published is a report on the pathogenic presence of chytrid fungi in frogs that have died in epidemics in Australia and Central America. Previously iridoviruses and other fungi have been found in other incidences of declining populations. It may be that multiple agents may be responsible for decreasing the resistance of amphibians to such organisms. The widespread occurrence of deformities in frogs in the U.S. and Canada may be related to the declines through substances such as endocrine disruptors. Retinoid compounds are a prime suspect because they have multiple effects during normal vertebrate development – not only on the musculoskeletal system but also on the endocrine system and immune system. It is possible that the frogs (and some salamanders) are being most affected by lowering of resistance to pathogens, especially at the vulnerable time of metamorphosis. We are handicapped by ignorance of the immune system in amphibians. We also lack adequate documentation of the decline phenomenon in most places, but it is a worldwide situation.

The amphibian problem, the outbreaks of morbilliviral infections in marine mammals, and other reports of the spread of wild animal diseases suggest that we have severely compromised survival prospects of many species. To secure some of the likely threatened species in captivity is a major challenge that will require new standards of husbandry and medical care. The CBSG and its members can contribute to development of this conservation response. ■

Submitted by George Rabb, Chicago Zoological Park.

IUCN Red List Review Workshops

Two separate meetings were conducted to review the IUCN categories of threat, the first of which was held in London on 2-3 March 1998. At this meeting three specific issues were discussed in working groups. Comments from different parts of the world regarding the categories and their applicability were grouped under broad headings for discussion. The meeting was convened not to effect any change in the categories per se but to identify areas of further discussion and focus.

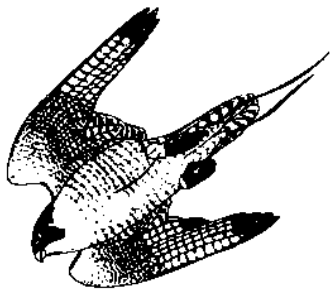
The working group on Listing Procedure and Documentation discussed issues concerning the importance of documentation, criteria, threshold values, non-endemics, lower risk categories and regional issues. The working group looking at criterion A (Population Reduction criterion) and generation length looked at issues affecting assessments due to the current A criterion from various angles, viz. thresholds and taxa-specific considerations, generation length and the time-window, past declines and its link with future declines, guidelines for projecting into the future, population size and the A criterion, short-term trends vs. natural fluctuations, definition of generation length, guidelines on relationship between population decline and habitat loss, and confidence limits on declining population data.

The Categories and Criteria Working Group discussed issues concerning the importance of the purpose of the Red List, problems of scale with respect to range-area thresholds, skewed metapopulation structure, extremely restricted populations, and parity of criteria B and C.

It was also identified that certain general issues had to be dealt with – specifically, issues that were applicable across all taxonomic groups and across all criteria. Some of the issues in this category were either discussed in other groups and elaborated or were noted for the first time, such as purpose of the Red List, universality of criteria thresholds, generation lengths, criterion E, data quality and deficiency and assessment of marine species.

At the end of the two-day meeting, a set of recommendations was derived, the gist of which is included here. It was recommended that the Red booklet be redrafted, have separate workshops on range-area issues, assess extinction risk of marine species, review possible alterations to criterion A, and review regional application of the categories.

The Regional Application Working Group meeting was the second meeting, held from 2-5 October 1998



in Montreal. The aim of this meeting was to look at regional or national level (sub-global) application of the IUCN categories. After much discussion, the group reduced the number of options for consideration in regional application to four important points: the use of criterion A only; the use of criterion E only; assess globally and then adjust the category for the country or region; and finally assess regionally and adjust category. It was seen that that the first three options were not feasible because of the inherent difficulty to apply them in isolation for different taxonomic groups. The fourth option of regional application and category adjustment was thought to be best.

It was decided that any taxon assessed would be so done in a region considering it as a global population. The taxon would then be evaluated taking into consideration the effects of migrating individuals or propagules that may have impact on the assessed population vis-a-vis the rest of the global population. In case of a positive effect, the category would be downgraded or if the assessed population was a sink, the assessment would be upgraded. The regional assessment will also be accompanied with the percent of the proportion of global population assessed regionally.

In short, if a taxon was assessed in a region as Vulnerable and the effects of migration downgraded it to Lower Risk near threatened, the regional assessment would be shown as:

LRnt (VU) EN 30%

where LRnt is the status of the taxon regionally after downgrading due to immigration; VU is the status of the taxon regionally but assessed globally; EN is the status of the taxon at the global level (if an assessment exists); 30% is the proportion of the global population for which the regional assessment is based. ■

Submitted by Sanjay Molur, CBSG, India.

ISIS Update Report

- Over 500 zoos in 56 countries on six continents are now served by the ISIS network. Member institutions own ISIS and elect its Board of Trustees.

- ISIS provides animal management and animal records software to these institutions.

- ISIS also provides valuable pooled data on 1.2 million animals of 7500 species, pooled veterinary clinical norms information on 750 species, and pooled collection planning information from a growing number of institutions. We use both CD-ROM and the Internet to deliver this information.

- ISIS is an international organization. This year we have taken several steps to make this even more true than before:

  1. This year, ISIS started a branch office in the Asian time zone. This branch office is based in Sydney Australia at the ARAZPA Office. This is a first experiment in improving delivery of services from potentially multiple bases around the world. We expect this branch office approach to improve our linkage with regional associations and their programs and are trying to think creatively and flexibly to see how other such branch offices and partnerships can be established.

  2. ISIS serves as the Secretariat for the World Zoo Organization, and is developing new ways to bring these two international organizations into constructive synergy.

  3. ISIS and IUDZG-WZO cooperate in publishing an annual CD-ROM containing 370 international and regional studbooks, 16 husbandry manuals, the text of *Zoo Future 2005* and text of the *Executive Summary of the World Zoo Conservation Strategy*.

  4. ISIS is now a member of BCIS – a network of the 12 international conservation database organizations, who are working to develop cooperative relationships.

  5. ISIS has established international zoo discussion Forums. A very active international zoo veterinary Forum offers zoo veterinarians a chance to consult with their colleagues worldwide on challenging cases. A Spanish-language Zoo Forum, requested by Latin American Zoos, is assisting with exchange of much zoo and animal management information among a significant-sized group of Spanish-speaking institutions.

  6. This year, ISIS has been working very hard to deliver a brand-new Windows software suite, starting with an entirely new Animal Records Keeping Software – ARKS 4. This much easier-to-use Windows software is now at a number of zoos for testing. In this international context there is a very important feature of the new Windows ARKS, and of the other Windows software tools which will follow ARKS. This important feature is translation into many human languages. The new ARKS allows the user to select their preferred language. A few months ago we had German, Spanish, and other Roman-alphabet languages working in ARKS 4. One month ago we succeeded with Russian – which meant learning to display the Cyrillic alphabet. When our lead software developer Paul Scobie and I came to Yokohama one week ago, we came with plans to work on Japanese translation and display of Japanese characters. We received much help from Kazuyoshi Itoh of Tama (who serves on the ISIS Board) and Dr. Hori who advises Yokohama and is a liaison for ISIS. After several most interesting days, I am delighted to report we have succeeded in displaying the top menus of ARKS 4 in Japanese, as translated by Itoh-san. We are now certain we can deliver true international software for convenient translation by each language group in the zoo world community.

  7. In addition to the branch initiative, we are currently in the process of hiring the first international staff member for the US headquarters office. You can and should expect this unusual global network to become even more effective, and even more international. ■

Submitted by Nate Flesness, International Species Information System.

SOS Baiji! The Extensive Cooperative Efforts on the Conservation of Baiji Between China and Japan Over the Past Ten Years

Submitted by Xianfeng Zhang, Institute of Hydrobiology, Chinese Academy of Sciences

The baiji or Chinese River dolphin (*Lipotes vexillifer*) is an endemic aquatic mammal of China, which is only distributed in the middle and lower reaches of the Yangtze River. In the past there may have been thousands of baiji living in the rivers, its tributaries and associated lakes. Now because of expanding human activities, baiji's population size has been decreased recently from approximately 300 in the early 1980s, to fewer than 100 at present! This dolphin is now on the brink of extinction because of development of fisheries, transportation, construction of dams and floodgates, and pollution. The baiji may well become the first dolphin species to disappear from the earth, not because of natural causes, but because of the activities of human beings.

The critically endangered status of the baiji has attracted much concern nationally and abroad. To help prevent this tragic extinction, the Chinese government, more than ten years ago, listed baiji in the first order of protected animals of the country. Within and outside of China, much research and conservation effort by scientists, conservationists and colleagues has been made for saving the animal. Among contributors to baiji conservation, Japanese government agencies, scientists, conservationists and aquarists have made the most effective efforts and largest contributions over the past ten years. Some cooperative projects initiated by Japan are still in progress.

During spring 1988, two years after the first "Workshop on the Biology and Conservation of River Dolphins" was held in Wuhan, China, Mrs. Yukiko Hori, Director and President of Japan's Enoshima Aquarium (EA), visited the Institute of Hydrobiology of the Chinese Academy of Sciences in Wuhan and became aware of the plight of the baiji. Soon after Mrs. Hori's return to Japan, concentrated research and action on rearing and breeding of the baiji was put into effect. A major conservation project between China and Japan to save the baiji was discussed among scientists and conservationists, and an agreement called "Agreement of Sino-Japan Joint Research on Artificial Propagation of Baiji Dolphins" was signed in Tokyo in 1988. Since then, many cooperative projects including research, training and expert exchanging, supplying equipment and facility construction have been carried out or are still in progress (see table below).

Project No.	Date	Project Type	Director or Member of Project	Estimated Funds (in US$)	Supporters
1	October 1988	Visiting and negotiation	Jiankang Liu	50,000	EA
2	March 1989	Personnel training at EA	Three TBR staff trained	25,000	JICA, EA
3	1989-1992	Facility construction and equipment supply	Peixun Chen, Renjun Liu	900,000	JICA, EA
4	March 1992	Personnel training at EA	One IHB staff trained	10,000	JICA, EA
5	March 1993	Personnel training	Two IHB staff trained	22,000	JICA, EA
6	June 1993	Cooperative research	Teruo Tobayama, Asami Fujimoto's visit to TNBNR	2,000	EA, IHB
7	January 1994	Cooperative research	Toshio Kasuya, Renjun Liu	30,000	JICA, EA
8	February 1996	Cooperative research	Tomonari Akamatsu, Ding Wang	41,000	SAJ
9	December 1998	Equipment supply	Renjun Liu, Ding Wang	350,000	JICA
10	November 1998	Cooperative research	Tomonari Akamatsu, Ding Wang	36,000	SAJ
11	1993-1998	Donations from Japanese festivals	Renjun Liu	90,000	EA, JBCA
12	1992, 1997	Three books published	Peixun Chen, Toshio Kasuya	10,000	EA, IHB

EA = Enoshima Aquarium; IHB = Institute of Hydrobiolgy, Chinese Academy of Sciences; JBCA = Japan Baiji Conservation Association; JICA = Japan International Cooperation Agency; SAJ = Scientific Agency of Japan; TBR = Tongling Baiji Reserve; TNBNR = Tian-e-zhou (Shi-shou) National Baiji Natural Reserve

Results and Progress of Projects

Much progress on the research and conservation of baiji has been made through these cooperative projects. The results of a few selected projects are summarized below.

Construction of a Baiji Dolphinarium

A stranded, seriously injured male baiji, later named Qi Qi, was caught by fisherman in 1980 and was the first baiji to be kept in captivity. His inadequate pool was noted by Mrs. Hori and her colleagues and led to a cooperative project for the construction of a new dolphinarium. CAS provided the funding, IHB supplied the land, JICA supplied the water filtration system, and EA supplied the underwater glass and paint for the new pool. The new dolphinarium was opened in November 1992 and includes a main pool, subsidiary pool, medical pool, and breeding pool (totaling 1,400 tons of water). Qi Qi was transferred to the breeding pool in 1993. A pair of young finless porpoises, *Neophocaena phocaenoides*, was introduced into the main pool in 1996 and are now approaching sexual maturity. Many studies, such as behavior observations, disease diagnosis and treatment, and hematology have been done in the new pools.

Personnel Training

Prior to 1989 IHB staff were unable to get training for monitoring dolphin health, as there was no experienced dolphin trainers in China. Beginning in 1989, with help from JICA and EA, Chinese trainers began training programs at EA and other aquariums in Japan during the construction of the new dolphinarium. Staff from Tongling Baiji Reserve and the Department of River Dolphin Research, IHB received three months of training on dolphin husbandry and research.

Field Surveys and Capture

Surveying baiji and finless porpoise populations in the Yangtze River is a regular duty of scientists and staff at IHB. Surveys were historically labor intensive, relatively inflexible, and required a lot of manpower, fuel and funds. Three inflatable speed rubber boats with outboard engines were donated by JICA to facilitate and improve field survey methods. A cross-country car and mid-sized truck were also donated by JICA to transport the catching team and captured dolphins and porpoises faster and more effectively. Now equipped with these vehicles, surveys are more effective and economical and several live captures of dolphin and porpoises have been carried out.

Cooperative Acoustic Studies on Baiji and Finless Porpoise

A cooperative study between National Research Institute Fisheries Engineering and IHB, supported by SAJ, was conducted in the new dolphinarium and in TNBNR in 1996. The objectives were to observe the echolocation abilities of the baiji and finless porpoise and to develop acoustical survey methods. Findings included the comparison of inter-click intervals in free-ranging and captive individuals and evaluation of waveform characteristics.

Publication of Books

Three books about baiji have been published with joint cooperation between China and Japan: 1) *Baiji – A Rare Treasure*, by Peixun Chen and Renjun Liu, 1992 (in Japanese and English); 2) *River Dolphins: Their Past, Present and Future*, edited by Toshio Kasuya, 1997 (in Japanese and English); and 3) *Biology of Baiji and Its Rearing and Conservation*, by Peixun Chen, Renjun Liu, Ding Wang and Xianfeng Zhang, 1997 (in Chinese).

Prospects for the Future

The cooperative efforts between China and Japan have been very effective and productive, as a result of great help and support from JICA, EA, SAJ, JBCA and others. Both Chinese and Japanese scientists, conservationists and experts believe that these efforts were worthwhile and are an important part of a long-term mission to save the baiji. Some cooperative projects are still in progress as a continuation of past efforts, and also form a foundation for future efforts. A new project supported by JICA will supply new equipment for the dolphinarium, including ozone generators and a water filtration system. A cooperative research project to test the effectiveness of broad band acoustic survey techniques in locating baiji and finless porpoise in the Yangtze River will be conducted in November 1998 with support from JICA and SAJ. Finless porpoises will also be tracked in the Yangtze River by satellite next year with transmitters provided by JICA.

In brief, the cooperative efforts between China and Japan are only the beginning of a long-term future collaboration to save the baiji. Through these efforts we hope the baiji, a so-called "living fossil" will not become a real fossil. ■

List of Special Reports from the 1998 CBSG Annual Meeting

- Outline of Yokohama New Zoo and Role of Breeding Center in the New Zoo
  Masanori Kobayashi, Office for Construction of the New Zoo of Yokohama
- Conservation and Breeding Program for Kagu, *Rhynochetos jubatus*
  Kumiko Hara, Yokohama Nogeyama Zoo
- Conservation and Breeding for Black Rhinoceros, *Diceros bicornis*
  Haruo Otsu, Hiroshima Asa Zoo
- Invertebrate Conservation Update
  Paul Pearce-Kelly, London Zoo
- Japanese Conservation Programme of Finless Porpoise, *Neophocaena phocaenoides*
  Mr. Hiromi Okamura, Miyajima Aquarium
- Conservation of the Japanese Giant Salamander, *Andrias japonicus* (Temmimck)
  Mr. Takeyoshi Tochimoto, Himeji City Aquarium.
- Conservation and Breeding Program for Endangered Japanese Freshwater Fishes
  Mr. Masayoshi Maehata, Lake Biwa Museum
- Captive Breeding of Blakiston's Fish-owl, Keptupa Blakistoni at Kushiro Zoo
  Mr. Ryoji Shimura, Kushiro Zoo
- Preservation and Breeding of the Oriental White Stork
  Takahisa Hosoda, Tama Zoological Park
- Relationship of Rearing Population Size and Breeding Success for Humboldt Penguins Kept at Japanese institutions
  Mr. Michio Fukuda, Tokyo Sea Life Park
- Birth of a Chimpanzee, *Pan troglodytes*, Baby Following Artificial Insemination with Cryopreserved Epididymal Spermatozoa Collected from a Male Post-Mortem
  Yukio Hukumoto, Hiroshima Asa Zoo

For copies of the special reports listed above or for more information on any of the reports or programs in this newsletter, please contact the author directly.

Conservation News Updates

The last remaining Northern White Rhinos are threatened with extinction after a recent attack on park rangers in Congo's war-torn northeast. The four-month rebellion in Congo and proliferation of arms in the area could have disastrous effects not only on rhinos but also on mountain gorillas, whose habitat in Virunga National Park also includes Uganda and Rwanda.

The last free-ranging Mexican wolf in Arizona was shot on 23 November 1998. Of the 11 wolves released in March 1998 as part of the Mexican Wolf Recovery Program, five were shot and the rest were either recaptured or are missing and presumed dead. These captive-born wolves were known to have successfully hunted elk and deer and raised young in the wild. Recovery attempts are continuing; two pairs of wolves were released on 11 December.

Reports from the Chinese Association of Zoological Gardens suggest that the South China tiger may be extinct in the wild. Currently there are about 50 South China tigers in captivity, all in Chinese zoos.

Illegal trade in babirusa is increasing in north Sulawesi, where 16 live animals have been confiscated. Babirusa are often accidentally caught in snares legally set for Sulawesi warty pig. Forest and mining concessions and an increasing human population also threaten the wild babirusa population.

CBSG Scheduled Workshops and Meetings for 1999

CBSG Staff Attending: (S)=Ulysses Seal, (E)=Susie Ellis, (B)=Onnie Byers, (M)=Phil Miller

Meeting dates		
January	28-31	Alberta, Canada: Eastern Slopes Grizzly Bear PHVA (S,B,M)
February	20-26	Jersey, UK: PHVA Facilitator's Course (S)
	24-18 Mar	China: Giant Panda Biomedical Survey (E, Wildt)
April	12-16	North Carolina: Red Wolf PHVA (S,M)
	21-24	Cape Town, South Africa: African Penguin PHVA (E,Wildt,Lacy)
	25-27	Omaha, NE Henry Doorly Zoo: Disease Risk Workshop (S, B, M)
May	22-26	Cincinnati, OH, USA: 7th World Conference on Breeding Endangered Species in Captivity (S,B,E,Wildt)
June	7-16	China: Giant Panda PHVA (S,E,Wildt+5)
	21-25	Costa Rica Medicinal Plants CAMP (S)
July	1-17?	India CAMPS (S)
	1 week	Brazil: Atlantic Forest Primate CAMP (S)
September	23-28	Apple Valley, MN: AZA Conference (S,M,B)
October	15-17	Pretoria, South Africa: CBSG Annual Mtg. (S,E,B,M)
	25-29?	Kinshasa, D.R.C.: Bonobo PHVA (S, M)
November	3-weeks	Havana, Cuba: Plant CAMP, PHVA (S)
		Havana, Cuba: Animal CAMP, PHVA (S)
December	2-7	Chengdu, China: Veterinary Workshop (S,E,Wildt)
	8-13	Chengdu, China: Technical Committee Mtg on Giant Panda Breeding (S,E,Wildt)

CBSG *News*

Newsletter of the Conservation Breeding Specialist Group
Species Survival Commission
IUCN – World Conservation Union

CBSG News
12101 Johnny Cake Ridge Road
Apple Valley, MN 551224-8151 USA