CBSG News

Inside…

Reports from the 1999 Annual Meeting

Volume 10
Number 2
December 1999

Looking Toward a New Millennium

Nineteen ninety-nine was a landmark year for CBSG. We augmented our workshop processes and tools and expanded their application: 1) to assist organizations in their futures and conservation planning; 2) to assist capacity building through surveys and training workshops as an implementation of workshop recommendations; 3) to vastly improve data handling from the CAMP workshops with a database and data entry system; 4) to expand the range and complexity of options for scenario building for population simulation modeling and risk assessment with a new version of VORTEX; 5) to quantitatively include the impacts of local human populations on habitat and population viability assessment; and 6) to illustrate and communicate the CBSG workshop process with a professional video production of an actual workshop.

The year 2000 promises to be equally exciting with: 1) further expansion of the capacity building workshops and training, particularly in China and Mesoamerica; 2) extension of the conservation planning process to include training in small group processes and facilitation as organizational management tools; 3) development of tools for quantitative assessment of disease risk in conservation actions with captive and wild populations; 4) our third Futures workshop; 5) the completion of several workshops to assist SEAZA and WZO in the establishment of priorities for *in situ* conservation programs; and 6) the challenge of producing a new Captive Breeding Policy statement that reflects the advances in our understanding of roles for captive propagation institutions in support of *in situ* conservation, for adoption by the SSC and IUCN.

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

Please note our new telephone and fax numbers!

Jan/Feb 2000:		Starting 1 March 2000:	
Tel:	01-612-997-9800	Tel:	01-952-997-9800
Fax:	01-612-432-2757	Fax:	01-952-432-2757

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This issue of the newsletter is primarily devoted to reporting the results of plenary sessions and working group discussions at the CBSG annual meeting in Pretoria, South Africa, which reflect this increase in our expertise and growth in application of our core competencies. A recent analysis of CBSG core competencies, in preparation for our next futures workshop, tentatively identified six areas: 1) workshop processes and tools (PHVA, CAMP, Conservation Planning); 2) our science-based staff and collaborators; 3) our zoo/aquariums core support; 4) our being a part of the SSC/IUCN, including our working relationships with other Specialist Groups; 5) tool development, innovation of applications, and capacity building; and 6) our credibility, reputation for fairness, and innovative leadership.

The General Assembly of the IUCN meets in October this year in Amman, Jordan. These assemblies, previously occurring every three years, are now planned for a four-year interval. After the assembly and reappointment of Specialist Group Chairs (at the discretion of the SSC Chairman who is elected by the Assembly; our current chair, David Brackett, plans to stand for re-election), the letters for appointment and reappointment to the CBSG will be distributed. I have volunteered to continue as Chairman of CBSG. Our terms ran four years this time and will be for four years again through 2004. All of us look forward to working with you over the coming years. The work of CBSG is entirely dependent on the unstinting support of our volunteer membership. Our best wishes to all of you.

Ulysses S. Seal, CBSG Chairman

Introducing CBSG's Strategic Associates

During its 20-year history, CBSG has grown into an organization with a global reach through its vision of catalyzing action for threatened species conservation. Our reputation is built upon our strong scientific base, our reputation for being fair and respecting the views of all who wish to engage in dialogue, our innovation of tools and workshop processes, and our intense productivity. In addition, and perhaps most importantly, CBSG has gained immeasurably from the commitments of the many people who share our vision and graciously volunteer their time and talents to our activities.

We wish to recognize those individuals who, on an on-going basis, challenge us to expand our vision, help us to explore and develop new capabilities, and play a very special role as a part of the soul of CBSG, by designating them as "Strategic Associates" of CBSG. We are honored to name the following individuals:

Don Janssen
Bob Lacy
Mike Maunder
Lee Simmons
Ron Tilson
Harrie Vredenberg
Sally Walker
Frances Westley
David Wildt

It is our intention to list Strategic Associates on the credits page of all of our documents and in future issues of *CBSG News*. Their sustaining support and advice to us over the years in the face of much uncertainty and challenge are deeply appreciated.

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 $35 to help defray cost of publication would be most appreciated. Please send contributions or news items to:

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CBSG Mission Statement

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

The goals of 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.

ARAZPA Regional Report

The membership base of the Australasian Regional Association of Zoological Parks and Aquariums (ARAZPA) is small, which offers the advantage of facilitating cooperative effort and approach to conservation programs. Equally, for a smaller region it is necessary for institutions to band together to assemble the necessary resources and funding base so that significant impact can be made. It is this collaborative effort that has directed ARAZPA species management plans and conservation programs over the past few years for species such as yellow-footed rock wallabies and elephants. In 1999 ARAZPA developed the National Zoo Amphibian Project (contact the ARAZPA offices or CBSG for a copy of this important document). The Australasian region has expanded over recent times to include institutions in New Caledonia and Fiji.

In the past year CBSG conducted a series of Conservation Planning workshops at Perth Zoo and Healesville Sanctuary. In addition, Dr. Seal carried out a Futures Search workshop for the Australian region. Participants recommend these workshops to any other institutions or regions that may be interested. ■

Submitted by Christine Hopkins, ARAZPA, and Chris Larcombe, Royal Melbourne Zoological Gardens.

AZA Regional Report

The American Zoo and Aquarium Association (AZA) represents 184 North American zoological institutions and nearly 6,000 zoo and aquarium professionals. AZA currently has 345 Studbook/ Population Management Plans (PMPs), 89 Species Survival Plans™ (SSPs) covering 118 species, 43 Taxon Advisory Groups (TAGs), 10 Conservation Action Partnerships (CAPs), and 11 Scientific Advisory Groups (SAGs). The following represent some of the activities completed during 1998-99:

Population Management/SSPs

- ***Population Management Centers.*** The AZA Board of Directors has approved the establishment of 1-2 AZA Population Management Center(s) as a two-year pilot project with funding from AZA's Conservation Endowment Fund (CEF) and Disney's Wildlife Conservation Fund. The Center will employ two population biologists to perform SSP master plan analyses and related communication tasks.
- ***Needs Assessment Task Force.*** The AZA's Wildlife Conservation and Management Committee (WCMC) has created a task force to examine the association's long-term needs in software and technology development in animal record-keeping, population management, and collection planning. A report is expected in March 2000.

Strategic Collection Planning/TAGs

- ***REGASP Implementation***. Significant progress continues toward implementation of the modified version of REGASP and REGASP-Link, collection planning software for use in North America. Training workshops were conducted at all three AZA regional conferences. Relevant Regional Collection Plan (RCP) and other data are being entered into REGASP-Link for use by institutional collection planners.
- ***Institutional Collection Planning.*** Assistance with institutional collection planning workshops was provided at Jacksonville Zoo and Disney's Animal Kingdom.
- ***Regional Collection Plans Approved.*** WCMC approved four Regional Collection Plans in the past few months for Antelope, Galliformes/Tinamiformes, Coraciiformes and Penguins. Several others are currently under review.

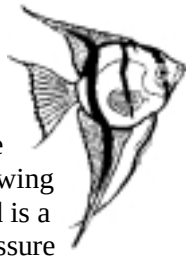
Fund-Raising to Support Conservation

- ***Conservation Endowment Fund.*** The AZA Conservation Endowment Fund (CEF), initiated to support the conservation related initiatives of AZA members, is now valued at over US$ 5.2 million.
- ***1999 CEF Awards.*** A total of 37 proposals were received, totaling over $715,000 in requests. Of these, 15 projects representing a variety of taxa and approaches were funded (41%), for a total of $290,872. The award total included a $110,000 grant from the Disney Wildlife Conservation Fund.

Conservation Education

- ***AZA Resource Center.*** The AZA Resource Center is now available on the AZA web site (www.aza.org). AZA members can access important sample documents, such as acquisition/disposition policies, loan agreements, and educational curricula. Currently 469 documents are available for viewing or downloading, and annotated links are provided to 668 other sites.

- ***Year of the Ocean.*** In 1998, 22 AZA institutions hosted regional poster contests for AZA's National Year of the Ocean Poster Contest. Nearly 5,000 elementary students produced artwork. Local and national winners were selected.
- ***Munson Aquatic Conservation Exhibitry Awards.*** Two $25,000 awards were given this year to the Waikiki Aquarium for its "Corals are Alive!" exhibit and the Seattle Aquarium for its "Sound to Mountains: A Watershed Journey" exhibit.
- ***Educator's Resource Guide.*** In May AZA's *Conservation Educator's Resource Guide* was sent to each AZA education department. The guide includes information on AZA staff and programs, the Conservation Education Committee and their strategic plan, and relevant excerpts from the AZA accreditation standards and questionnaire.
- ***Tigers in Crisis Exhibit Update.*** This exhibit has completed tours through the Phoenix Zoo, Akron Zoo and Minnesota Zoo. It was developed by AZA and funded by the National Fish and Wildlife Foundation and Exxon *Save the Tiger Fund*.



Aquariums

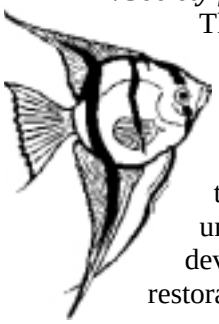
- ***Aquarium Task Force.*** An Aquarium Task Force has been created to identify the special needs of aquariums, the fastest growing segment of the AZA membership. Related is a proposal for a bylaws change that would assure more aquarium representation on the AZA Board of Directors.

Conservation Action Partnerships

- ***FIGs Become CAPs.*** AZA Fauna Interest Groups (FIGs) have changed their name to Conservation Action Partnerships (CAPs) to better reflect their mission. The primary role of CAPs is to provide AZA members with high quality field conservation opportunities and to establish a long-term, consistent presence in regions of interest that have requested assistance.
- ***Web-based Catalog of Endorsed Projects.*** A web-based catalog of Conservation and Science (C&S) committee-endorsed projects is being developed. Entries will include a brief project description, contact information, types of assistance needed, and current partner organizations.

Partnerships

- ***Bushmeat Crisis Task Force.*** In February 1999 AZA C&S Office organized a meeting of 28 U.S. organizations and agencies concerned about the African bushmeat crisis. Participants approved a consensus statement expressing grave concern about the illegal commercial bushmeat trade and its effect on wildlife conservation. A national Bushmeat Crisis Task Force (BCTF) was subsequently developed, which will serve as an information resource and will educate decision-makers in Washington DC.
- ***AZA/FWS MOU.*** Progress continues under the AZA/US Fish and Wildlife Service (FWS) MOU signed in 1998. The AZA Conservation Action Partnership: North America (NACAP) is developing a regional action planning process to identify priority cooperative projects on native species and a NACAP web site is being developed to highlight the over 100 existing cooperative projects between AZA members and state and federal government wildlife agencies.
- ***AZA/Society for Ecological Restoration MOU.*** The AZA and the Society for Ecological Restoration have developed a draft MOU designed to increase cooperation on local ecological restoration projects. A symposium on the evolving role of zoos and aquariums in ecological restoration was developed by AZA to showcase existing restoration projects by AZA members.



Science/Scientific Advisory Groups

- ***AZA Science Task Force.*** An AZA Science Task Force has been formed to examine the role of science in AZA institutions and to prepare a report and recommendations to the AZA Board of Directors.

Conservation Planning

- ***AZA Elephant Strategic Planning Initiative.*** The AZA Board of Directors has initiated a planning process to address the future of elephants in North American zoos. Three meetings have been conducted by a core planning committee of elephant experts, focusing on ethical issues, population management, husbandry and captive care, and linkages to field conservation. The Board will make final decisions on the recommendations at its mid-year meeting in March 2000.

Ethical Issues and Public Relations

- ***King News Conference.*** The AZA C&S Director (M. Hutchins), AZA Gorilla SSP Coordinator (D. Wharton) and AZA Great Ape TAG Co-chair (L. Perkins) traveled to Miami to appeal for the transfer of the gorilla "King" from Monkey Jungle, where he has been confined to a small cage alone for 10 years, to Zoo Atlanta, where he could be socialized with other gorillas and live in a large, naturalistic setting. King is one of only three gorillas in North America now managed outside of the SSP.

- ***NBC Nightly News.*** M. Hutchins appeared on NBC Nightly News to answer unproven allegations about animals from AZA institutions going to hunting ranches and roadside attractions. The report was highly biased and sensationalist, but efforts by AZA staff and members were effective in defusing the impact.
- ***AZA Animal Acquisition/Disposition Policy.*** The AZA Animal Acquisition/Disposition Policy, which provides guidance for AZA institutions, has been reviewed by a Board-appointed task force. The Board will make a final decision on the policy in March 2000.

Publications

- ***AZA Annual Report on Conservation and Science.*** The 1997-98 and 1998-99 editions are nearing completion and will be published sometime after 1 October 1999. After that, ARCS will be published only in electronic format on the AZA Web Site.
- ***Great Apes and Humans at an Ethical Frontier.*** Editing continues on the third volume in the AZA/ Smithsonian Institution Press book series: *Zoo and Aquarium Biology and Conservation*. Intended as a response to the *Great Ape Project*, this volume explores the political, economic and biological realities that frame the context of modern wildlife conservation.
- ***AZA Membership Directory***. A new AZA Membership Directory is now available and has been completely redesigned in a new, more user-friendly format.
- ***AZA Animal Exchange On Line.*** AZA's *Animal Exchange*, a publication to facilitate animal transactions between AZA institutions, went completely online as of 1 October 1999. Animal Exchange Online is available only to AZA Professional Members. The online service includes a search capability to quickly find available or wanted specimens of particular taxa.

Administration

- ***Office Consolidation.*** Consolidation of the AZA Wheeling and Bethesda Offices is now complete. All AZA staff are now located at the new AZA Executive Office at 8403 Colesville Road, Suite 710, Silver Spring, MD 20910.
- ***AZA Web Site.*** The average number of user sessions per day on the AZA website is 2,028. The most frequently downloaded file is the *AZA Annual Report on Conservation and Science* (19%).
- ***Staff Changes.*** The following staff have been hired: Mindi Moretti (Publications Coordinator); Denny Lewis (Accreditation Coordinator); Mark Dellapietra (Membership Coordinator); Lynn Huang (Accountant); La'Shuan Jackson (Publications Program Assistant); and Sandi Moore (Receptionist). Linda Boyd is now AZA Meetings Manager and Mike Souza is the AZA C&S Program Assistant. ■

Submitted by Michael Hutchins, AZA.

CZA India Regional Report

Central Zoo Authority

In India, zoos are regulated under the Wildlife (Protection) Act. The Central Zoo Authority (CZA) was created by the was created by the Government of India in 1992 to specify minimum standards for housing, upkeep and veterinary care of zoo animals, evaluate the functioning of zoos, recognize and derecognize zoos, identify endangered species for captive breeding and coordinate exchange programs, staff training and research. CZA is headed by the Minister of Environment and Forests and has ten members plus a full-time Member Secretary. The current Member Secretary is Mr. P.R. Sinha, who has worked as Director of Patna Zoo and with Project Tiger. He replaced Mr. S.C. Sharma who was promoted to the Addl. Inspector General of Forests.

Recognition/De-recognition of Zoos

The Central Zoo Authority has closed down 16 mobile zoos as part of its strategy to close down nonviable zoos not serving conservation. In addition, it refused recognition to 24 mini zoos/deer parks in 1997-98. CZA has asked these zoos to either transfer their animals to zoos with better housing and upkeep or renovate their existing facility according to the prescribed norms. During 1998-99 the CZA refused recognition to 23 zoos in India.

Revision of Zoo Rules

The Central Zoo Authority has inspected all 300 zoos in India and is now able to create more detailed and effective rules and guidelines for different kinds of zoos. A subcommittee will review the existing norms and standards and make revisions where appropriate. Recent legislation by zoos around the world is being consulted as well.

National Zoo Policy

CZA was instrumental in adoption of a National Zoo Policy by the Government of India in October 1998. This policy is the first official document which recognizes zoos as multi-disciplinary institutions in search of professional excellence. The policy recognizes wild animals of various species as an invaluable resource that should not be exploited for display purposes only. It also directs zoos to participate in planned breeding programs allocated to them.

CZA Workshops and Training Programs

- ***Zoo Policy Workshop.*** A workshop to discuss the implementation of the National Zoo Policy was held in Kanpur, Uttar Pradesh in April 1999. Zoo directors, veterinarians, non-governmental organizations associated with zoos, scientists, animal welfare activists and state and CZA dignitaries reviewed the policy and its implementation.
- ***Zoo Keeper Training.*** Training programs in animal upkeep and care were organized on a regional basis in local languages in five different centers of the country. Two zoo directors were sent for training to Jersey Wildlife Preservation Trust, UK.
- ***Education Sub-Committee.*** A 12-member subcommittee on zoo education was formed in February 1999 to formulate guidelines for dissemination of information on the role of zoos in conservation and developing zoo education material. A training course in zoo education is envisioned in the near future.
- ***Strategic Futures Workshop.*** A Strategic Futures Search Workshop took place in December 1999 to plan the direction of the CZA and Indian zoo community for the next five years.

Planned Breeding Programs

The Central Zoo Authority is actively pursuing planned breeding programs of threatened species by allocating specific responsibility to various zoos. Twenty tigers of wild origin have been identified as founders for its planned breeding program and have been marked with transponders. The Centre for Cellular and Molecular Biology, Hyderabad has been asked to conduct necessary tests to ascertain the genetic make-up of these animals.

- ***Asiatic Lion.*** CZA and the State of Gujarat will collaborate on a coordinated breeding program. All identified animals have been tested for genetic purity. The lions have been transferred to the assigned zoos participating in this breeding program.
- ***Red Panda.*** A planned breeding program is being conducted at Darjeeling and Sikkim zoos, with another zoo located in the Himalayas at Nainital also slated to join the program. CZA is committed to assisting this breeding program in association with the Zoo Outreach Organization/CBSG, India and the International Red Panda Management Committee. Posters, t-shirts, and educational packets provided by these organizations drew attention to this species during wildlife week in October 1999.
- ***Snow Leopard.*** A program for planned breeding of snow leopards is underway at Darjeeling Zoo. Efforts are underway to bring three rescued wild snow leopards to Darjeeling from Himachal Pradesh, Jammu and Kashmir to infuse new bloodlines into the existing population.

- ***Studbooks.*** Planned breeding efforts require accurate birth, transfer and death records and analysis of this data. Yet, administrative characteristics and constraints of Indian zoos makes it very difficult to maintain studbooks consistently. This year CZA has selected five important species (tiger, lion, lion-tailed macaque, golden langur and Indian rhino) and will allocate five studbooks to selected institutions along with a grant for maintaining them.

Collaboration with Other Institutions

- ***Veterinary Medicine.*** CZA is trying to bring together agencies and institutions working in the fields related to zoo management for optimum utilization of available technology. Toward this end, the Veterinary Council of India and CZA are collaborating to strengthen zoo veterinary care facilities. It is now mandatory for all veterinary graduates to undergo internship at zoos to register.
- ***Zoo Design.*** CZA has arranged with the School of Planning & Architecture in New Delhi to provide training in zoo design. CZA will fund this program, which will begin in early 2000.
- ***Biotechnology.*** CZA initially had an agreement with the Centre for Cellular and Molecular Biology, Hyderabad (CCMB) for the molecular characterization of animals in Indian zoos (especially Asiatic lions and

Indian tigers) and for the identification and characterization of hybrid lions and tigers. To continue this program until 2002, CZA has entered into an MOU with CCMB for establishment of a "Laboratory for Conservation of Endangered Species" with the objectives of: 1) monitoring genetic variation by DNA fingerprinting; 2) establishing gene banks; 3) semen analysis; 4) determining time of ovulation; 5) artificial insemination; and 6) *in vitro* fertilization and embryo transfer to preserve endangered species.

- ***IZDA.*** The Indian Zoo Directors Association has published two compendiums of research papers on Indian zoos (*Health and Disease Management* and *Animal Biology and Conservation*) with financial support from CZA. CZA is committed to support IZDA to make it into a viable professional body. The next meeting of the Indian Zoo Directors Association will be held in February 2000 in connection with the Calcutta Zoo's 125th Anniversary.

Rescue Facilities

The Central Zoo Authority has the responsibility for creating appropriate rescue facilities for 100 tigers and 260 lions that will be surrendered to the government by various circuses on the directions of the Court. The CZA, in consultation with various organizations and experts, has formulated guidelines for creation of these facilities at seven sites in six Indian states. Financial assistance of Rs 720 Lakhs (US$ 1.75 million) is being given to the executing agencies for these facilities. CZA will bear the entire cost for upkeep and feeding of these rescued animals, which will be kept off display in the vicinity of existing zoos. Additional facilities for bears and leopards are also being constructed in Tamil Nadu with assistance from CZA.

Financial Assistance to Zoos

The Central Zoo Authority has the mandate to assist zoos to improve their animal upkeep and veterinary care facilities. During 1998-99 financial assistance of Rs 394 lakhs (US $1 million) was provided to 21 Indian zoos. This level of financial assistance is likely to be maintained during the current year. ■

Submitted by P. R. Sinha, Central Zoo Authority.

EAZA Regional Report

European zoos went beyond political barriers in 1988, joining forces to establish the multinational zoo organization named the European Community Association of Zoos and Aquaria. This organization was transformed into a truly pan-European association, the European Association of Zoos and Aquaria (EAZA), in 1992 after the fall of the Iron Curtain that had divided Europe for so many years. Association membership has increased to more than 240 in 33 countries today. Some EAZA members are found in countries bordering Europe, including Israel, Turkey, Kazachistan, Kuwait and the United Arab Emirates.

Professional Zoos and Aquaria

EAZA links European zoos and aquaria in order to maintain or increase standards of these institutions. Members are dedicated to providing their visitors with rewarding experiences and the animals with optimal care. Objectives of these zoos and aquaria are to play a vital role in conservation by actively participating in the European Endangered Species Programs (EEPs) and by promoting public and political conservation awareness. Member zoos are also committed to supporting increased scientific knowledge that will benefit field conservation efforts.

Endangered Species Programs

A primary activity of EAZA is the operation of European Endangered Species Programs. The goal of these intensive cooperative breeding programs is to establish healthy reserve populations of rare and endangered species. The captive populations serve as ambassadors for their wild counterparts in increasing conservation awareness. EEP activities were initiated in 1985, with participation from 26 zoos in nine European countries. The first EEPs were established for six species with existing internationally coordinated programs: the bearded vulture, Congo peafowl, red panda, Amur tiger, okapi and lesser Malayan mousedeer. Today 400 institutions in 39 European and 16 non-European countries participate in more than 125 EEPs.

Activities

EAZA has produced guidelines and recommendations for professional enhancement of its members. In addition to standards for membership, EAZA has developed a 'Code of Practice' and a 'Code of Ethics,' which was adopted in 1999. Policy statements regarding education, responsible animal transactions and research have also been issued. EAZA was also

very involved in the development of the EU Zoo Directive, which officially recognizes the important role that zoos play in conservation.

As cooperation is essential to all EAZA activities, an EAZA/EEP Conference is held annually. The *EAZA/EEP Yearbook* with concise information on EEP developments and other zoo activities is published yearly. The quarterly publication *EAZA News* contains information on births and hatchings, conservation activities and new animal enclosures. Production of the EAZA *Available and Wanted List* four times a year facilitates direct exchanges of animals between member zoos. It is expected that this important service will also be available to EAZA members online in 2000.

Members

Membership to EAZA is open to all zoos and aquaria that are willing to comply with EAZA´s standards and commit to a high level of professionalism. Obligations must be met in regard to participation in breeding programs, animal husbandry, staff quality, and conservation education, as well as compliance with national and international legislation regarding species acquisition, possession and transportation. EAZA has developed its own accreditation and inspection system to ensure that only qualified institutions join the organization.

Zoos and aquaria meeting these standards are categorized as 'full members'. Zoos and aquaria that do not (yet) comply with the standards can temporarily join EAZA while receiving support for improving their standards. Membership is held by national zoo federations in eleven countries: the Czech and Slovak Republics, Denmark, Italy, France, Germany, the Netherlands, Rumania, Spain, Sweden and the United Kingdom. Some professional associations also hold membership.

Structure of EAZA

The EAZA structure consists of its members, the Executive Committee and EAZA Council. The Council prepares, discusses and votes on all policy matters. Full members can approve or reject decisions proposed by the Council at the annual general meeting.
Daily operations and financial administration are the responsibility of the Executive Committee. This committee is assisted by the permanent staff located at the EAZA Executive Office in Amsterdam Zoo.

EAZA working groups and committees are formed and disbanded as needs and activities dictate. Eight committees and two working groups are currently active: European Endangered Species Programs/long-term collection planning; membership; conservation

activities; exhibit design and education; zoo-related legislation; veterinary care; research activities; and aquaria issues.

Assisting Zoos in Central and East Europe

An EAZA working group focusing on support to central and eastern European zoos has long been active. The initiation of Zoo Information Centers (ZICs) in Budapest (Hungary), Turgu Mures (Rumania), Kiev (Ukraine), Moscow (Russia), Prague (Czech Republic), Riga (Latvia) and Warsaw (Poland) has been a major activity of EAZA. These satellite EAZA offices serve as clearinghouses for information on zoo management. Additionally EAZA has offered support to zoos in central and eastern Europe in masterplanning and zoo design and has developed a training curriculum focusing on conservation and zoo management Several sister zoo relationships have been formed between western and eastern European institutions. Scientific cooperation, exchange of zoo personnel, provision of travel grants, internships and assistance in payment of membership fees for ISIS and/or EAZA are some of the interactions occurring.

Funding

EAZA is a non-profit organization mainly funded by annual membership fees based upon the number of paying visitors the previous year. EAZA also receives funds from EEP participants that are not EAZA members as well as from advertisements and subscriptions to *EAZA News*. These funds mainly support EAZA Executive Office expenses; central and eastern European zoos also receive some financial support.

Europe as Part of the World

Many activities and decisions that affect EAZA members occur on a more global scale. EAZA represents its members in relations with supranational authorities such as the World Conservation Union (IUCN), European Union (EU), and the Convention on International Trade of Endangered Species (CITES).

Zoo associations in North America, Australasia, Southeast Asia, Latin America and Africa all carry out breeding programs for threatened species. Zoos and aquaria should all work together with CBSG and other relevant specialist groups to determine the most effective conservation activities.

Zoos and Ecosystem Support

Preserving individual species is not enough to protect the world's biodiversity. Conservation of intact ecosystems is the only chance for survival of our wildlife. For this reason more zoos are involved in conservation through providing knowledge, research possibilities, and financial support of field projects as well as by creating public awareness.

Education through Recreation

People need to be inspired to care about and understand natural ecosystems and the threats they face in order to care about conservation of these systems. Everyone should have the opportunity to experience, enjoy and learn about wildlife first hand. One of the objectives of EAZA is to promote knowledge and understanding of the natural world through zoos. Education is therefore an essential conservation task of zoos, and zoo animals contribute to increasing public awareness of the irreplaceable value of nature and biodiversity. Zoos have learned however that education can, and should be, fun to be the most effective.

Back to Nature

Fortunately, relatively few animals have been taken from the wild for zoos since the Convention on International Trade of Endangered Species (CITES) that regulates trade of wild animals came into force in the 1970s. Self-sustaining zoo populations for many species have been achieved through management and global cooperation. In some cases zoo animals are now being used to supplement wild populations and for reintroduction projects for species extinct in the wild. Well-known examples include the Przewalski horse, European bison and bearded vulture.

The Future

The future of zoos lies in finding increasingly effective means to support the four main zoo functions formulated in the World Zoo Conservation Strategy: conservation, research, education and recreation. It is through supporting these zoo functions that EAZA represents the interests of its members to help save the world's biodiversity. Many challenges are facing EAZA, including financial, technical and logistic ones. Further research in genetics, demography, reproductive biology, husbandry and other related scientific fields also need attention. The fact that 125 million Europeans visit EAZA member zoos annually demonstrates that there is a need for these zoos and what they offer, and suggests that EAZA can achieve its goals. ■

Submitted by Koen Brouwer, EAZA.

FZG British Isles Regional Report

The Joint Management of Species Committee (JMSC) of the Federation of Zoological Gardens of Great Britain and Ireland (FZG) met three times in 1998, each time just prior to the Conservation and Animal Management Committee meetings.

Annual Conference

The TAG Day was devoted to a diverse selection of presentations, three of which were by TAG chairs reporting on recent developments relating to their respective TAGs. Other topics included karyotyping, the EC Balai Directive, British mammals, basking sharks, and the Green Parrot Project, a software program being developed for identification of animals and artifacts.

TAG/JMSP Development

Over the last year nominations for co-chair of B&I TAGs were accepted by JMSC for the Terrestrial Invertebrate, Rodent & Lagomorph, and Galliform TAGs, and three new JMSPs were approved (Kerry slug, water vole and Oman Shei liocichla).

Participation of Non-Federation Members

There are currently about ten non-Federation collections participating in JMSPs/B&I TAGs that are charging entry to the public. It is the consensus of JMSC that in instances where it is deemed desirable for private collections to participate in JMSPs, they should

not ordinarily be discouraged by being charged membership fees, other than perhaps for publications.

However, for those which derive revenue from visitors and therefore enjoy increased credibility through association with the FZG's coordinated conservation and education initiatives, a financial contribution should be expected. This is being considered by the Membership & Licensing Committee.

Conservation Coordinator

Regrettably this post had still not been reinstated by the beginning of 1999 following the resignation of Caroline Lees in 1997. This situation is to be addressed soon such that the functions usually fulfilled by this position will be resumed as soon as possible.

Animal Transactions Policy

The Council had agreed to implement this policy for a 12-month trial starting October 1998. Under this policy members are required to ensure that unrefereed institutions complete a Proforma prior to any transfers of stock. This Proforma seeks assurances on the suitability of the proposed facilities, level of husbandry expertise and veterinary backup in cases where it is impractical to inspect the premises directly.

Training Programs

The 1998 course took place in May and was well attended, including representatives from three Federation collections as well as students from Manchester Metropolitan University (MMU). Given the popularity of the course with MMU, a similar training course was scheduled for 1999, to which applicants would also be invited from EAZA collections on the continent.

Husbandry Guidelines

An Editorial Board was initiated in November 1998 to be coordinated by Bryan Carroll (Bristol Zoo) and Mary Talbot-Rosevear (FZG) with the task of ensuring peer review and standardization of the format of Federation husbandry guidelines.

Research Group

This group has been resurrected under the coordination of Amy Plowman (Paignton Zoo). A co-chair is yet to be nominated to assist in the task of forging closer cooperative links with the TAGs and addressing husbandry and other problems requiring research.

Computer Software

The software required to facilitate data entry from the FZG end-of-year returns has been completed. Inventories for taxa maintained in British and Irish collections can now be produced and circulated with much greater efficiency. It is still the ultimate aim to encourage all members to contribute to the ISIS database, although it is currently not possible to generate regional inventories (i.e. country by country) from this source. Prototype software is being developed by Ajay Burlington to assess husbandry questionnaire data.

Population Management Workshop

A three-day workshop hosted by the Zoological Society of London was held in October attended by over 20 delegates, including representatives from EAZA, ISIS, AZA and ARAZPA. Different levels of population pedigree knowledge were identified and taxa nominated for trials in varying methods of species management. A Population Management Manual has since been produced by the ARAZPA office that covers current theory of studbook management.

Liaison with Other Regions

Neil Bemment (Chair, JMSC) and Nick Lindsay (Chair, CAMC) attended the mid-year EEP Committee meeting held in Amsterdam in July. Several British & Irish coordinators were present at the 1998 EEP conference, reflecting the B&I region's continuing support for the development of EEPs.

Two draft discussion papers are currently being reviewed, namely *Global Captive Management Programs* and *Interregional Captive Management Programs*. It has been noted that the final acronym of such documents should be renamed with a more appropriate emphasis on 'conservation'.

Conclusion

In the future all references to JMSPs or TAGs under the auspices of JMSC will use the prefix 'B&I' to indicate that they embrace all British and Irish collections within FZG regardless of the taxa in question. ■

Submitted by Neil Bemment, Joint Management of Species Committee (Chair).

PAAZAB Regional Report

The 10th Annual Conference of the Pan African Association of Zoological Gardens, Aquaria and Botanic Gardens (PAAZAB) was held in Cape Town in May 1999 and was attended by 51 delegates. Seven countries were represented: South Africa, Democratic Republic of Congo, Senegal, Cameroons, Tunisia, Indonesia and the United States.

The meeting consisted of closed administrative council sessions, open plenary sessions and open technical sessions. Two of the plenary sessions were devoted to working group discussions that dealt with Animal Welfare and Environmental Enrichment; Public Perception of Zoos and Aquaria; Communication; Accreditation; Minimum Standards; Anti-Zoo Lobbyists; and Veterinary Clinicians.

The Animal Welfare group produced a valuable document that will form the first part of an *Environmental Enrichment Manual* for PAAZAB. The Veterinary Clinicians group produced two documents, one on personnel health and another on contraception techniques in zoos. The working group on minimum standards asked several individuals and organizations to draw up tentative proposals of minimum standards for holding facilities for many animal taxa.

During the Council administrative sessions, our first mission statement, which was accepted in 1995, was reviewed and a new statement proposed and accepted. For the next five years the PAAZAB Mission Statement is: *"Conservation through Cooperation."* This indicates our dedication to conservation in collaboration with our colleagues, government authorities and the public.

Some changes were made to the Constitution to provide for the development of subregional associations. The North African zoos have reached a stage where they are ready to come together as a subregional association of PAAZAB. This is a very pleasing result of PAAZAB's efforts to bring other African zoos into its fold. Dr. Benzina Faycal of Tunis Zoo has been made the first chairman of the North African Regional Association (NARA).

PAAZAB is ready to initiate its accreditation system and to undertake the first inspection. This will be a test case to see if the system works or if modifications are needed. The Code of Ethics was also addressed and it is clear that revisions are needed. The Ethics Committee will propose changes for discussion in 2000.

PAAZAB is extremely pleased that 98% of its members have signed the Declaration Form accepting the philosophy behind zoos. There were two organizations that have had some problems and we are discussing the road ahead with regard to these.

As was the case last year, the generous contributions from a number of zoo directors and individuals from the US to the Outreach Africa Fund (Travel Fund) permitted us to invite three directors from African zoos to attend this year's conference.

Two excellent bulletins were again published this past year and were sent to more than 220 people, including all PAAZAB members. These publications also were sent to 70 US zoos and zoo-related entities, 16 government departments in Africa, and six regional associations. This publication is an important vehicle to publicize PAAZAB and its activities.

The 1999 PAAZAB inventory of animals in collections was again produced by Dr. Ferdi Schoeman and Dr. Mike Penrith of the National Zoo. This continues to be a valuable document. Dr. Schoeman also produced the List of Acronyms (3rd Edition) and the first edition of the PAAZAB Manual of Diets: Section 1 - Primates.

PAAZAB has developed a website, which soon will be linked to the web pages of all member organizations who have them. The address is *www.paazab.org*, where information can be found on our membership and objectives as well as on PAAZAB's African Preservation Programme (APP).

There have been some very important developments for the SSP with respect to the wild dog and the wattled crane. Presently there are ten bird, eight mammal and eight reptile species coordinators. We are looking for a coordinator for the riverine rabbit.

John Spence, who, as chairman, has kept the activities of APP alive for the past seven years, has resigned due to health concerns, and the new chairman, Dr. Ferdi Schoeman, was unanimously elected.

With regard to studbooks, PAAZAB has produced or is actively working on 18 studbooks, including four reptile, eight bird and six mammal studbooks. ■

Submitted by Antonio de Freitas, PAAZAB.

SEAZA Regional Report

The Southeast Asian Zoo Association (SEAZA) continues to expand its aid and training programs throughout the region. Funds recently donated to PKBSI (Indonesian Zoo Association) from outside the region (£1500 from RSPCA and AU$ 5000 from ARAZPA) have been used for the purchase of veterinary pharmaceuticals that will cover approximately 50% of the annual usage for ten zoos.

In addition, the 1999 installment of SEAZA's course on Zoo Biology and Management was held in October at Taman Safari Indonesia, Bogor. This course involved ten days of intensive training for about 20 Indonesian participants. The World Zoo Organization generously contributed SF6000 to this effort, with lecturers from Singapore, Malaysia and South Africa included in the program.

The regional zoo evaluation program continued during the year, with local authorities visiting Zoo Taiping, Zoo Melaka and Zoo Johor.

In November 1998, a meeting entitled "SEAZA Futures 2005" was convened in Bangkok. This meeting, modeled after the original "Zoo Futures 2005" initiative, was designed to help plot a course of action for the regional zoo association into the next century. Committees on Education and Conservation, Regional Conservation Breeding Programs, Developing *In Situ* Links, Regional Training, and Animal Welfare and Ethics were convened during the meeting to discuss these important issues.

Finally, we eagerly anticipate SEAZA's upcoming Annual General Meeting, with this year's theme of "Coping with Crisis: Zoos in the New Millennium". The meeting, to be held in November 1999 in Ho Chi Minh City, Vietnam, promises to be informative and productive. ■

Submitted by Bernard Harrison, SEAZA, and Suzanne Gendron, Ocean Park Conservation Foundation.

ZPO Regional Report

The Zoological Parks Organization of Thailand (ZPO) is responsible for five regional zoos in Thailand:

- Central Region: Dusit Zoo in Bangkok, 45 acres
- Northern Region: Chiangmai Zoo, 200 acres
- Northeast Region: Nakhornrajsima Zoo in Korat, 200 acres
- Eastern Region: Khao Keow Open Zoo in Chonburi, 2000 acres
- Southern Region: Songkhla Zoo, 400 acres

In total, these five zoos employ 700 individuals and house 18,000 animals.

The Zoological Parks Organization is under the Prime Minister's office, under the guidance of a minister and governed by a board of 11 members. Extra responsibilities for the zoos include the identification of six people to help sick or injured elephants, many of which roam the large cities unattended. These people catch 50-80 snakes, such as pythons and cobras, every month in addition to gibbons and other animals. Some of these animals are to be released into the wild each month, but suitable release sites are difficult to find.

Political pressures are put upon ZPO to build more zoos, which should be avoided if possible because four of the five existing zoos are unable to earn enough income to operate effectively. The lack of quality personnel to staff each facility is also of great concern.

In the past 10-15 years, there have been many complaints from both local and foreign visitors about the poor conditions in these zoos, as well as the cruelty to animals in various zoos, snake farms and other animal facilities. Early in 1999, we conducted a survey to find out how many zoos, snake farms and other wild animal-related tourist attractions exist in Thailand. The incomplete results show that there are at least 70 facilities of all sizes and conditions. In order to improve the situation at these facilities, and to be able to maximize conservation activity within them, the Thai Zoo Society was formed in September 1999. The immediate goals for the Society are to set an attainable standard of operation that can be applied to all institutions, to create an animal collection plan for conservation, to work out legal problems and to exchange animals in a meaningful and productive way.

CBSG involvement and guidance has been of great value to the Zoological Parks Organization, and it is hoped that this relationship will continue for the benefit of conservation throughout Thailand and the world.

Submitted by Pisit na Patalung, ZPO.

CBSG, India Report

This year CBSG, India has focused primarily on implementing information and lessons learned from the CAMP workshops held from 1995-98, orienting our activities around threatened and data deficient species.

In Situ Application

We are expanding, enhancing and increasing our taxon and subject area networks. Membership in all networks has increased: Invertebrate network (from 175 to 280); Amphibian network (150 to 180); and Reptile network (inception to 87).

New networks have been initiated based on the number of data deficient species in CAMP exercises: Chiroptera network (102 species; 50% DD); and Rodentia network (118 species; 25% DD). Networks now cover all countries in South Asia (India, Nepal, Pakistan, Sri Lanka, Bangladesh, Bhutan, Maldives), although communication with many countries is very difficult.

Invertebrate network members specializing in butterflies are collaborating on a handbook on protected invertebrates of India - Part I. Butterflies.

Amphibian and Reptile network members have been sent a list of Data Deficient (DD) species and questions regarding their current and future survey plans for these species. A Biological Information Sheet was also enclosed so that they can contribute new information on DD species. As Chiroptera and Rodentia specialists form networks they will also be given such tasks.

Recommendations from CAMP workshops for training and provision of materials are being implemented. A training workshop in field techniques for amphibian studies was carried out in December 1998 sponsored by the IUCN/SSC Declining Amphibian Populations Task Force, Dallas Zoo, Columbus Zoo and Friends of Rare Amphibians of the Western Ghats. The Forest Department of Karnataka was a collaborator for the workshop. In this way we can collect information from CAMP participants as well as researchers who could not attend the CAMP. This information and the Biological Information Sheets can be used in a CAMP review which should take place in a year or two and include South Asian countries.

Ex Situ Application

CAMP information is used to highlight problems and potential of Indian zoo populations. Several articles have been written, including an ongoing series in ZOOS' PRINT, detailing anomalies in the Indian collections with respect to threatened species, space and resources in the zoos. Lobbying with the Central Zoo Authority has been done to catalyze pending actions for threatened species in Indian zoos (e.g. Nilgiri tahr, red panda).

Education

CBSG, India contributes scientific focus to the activities of Zoo Outreach Organisation and its project, the Asian Regional Network of International Zoo Educators (ARNIZE). ARNIZE covers all of South, Southeast and East Asia and has 116 members from 17 countries, representing 67 zoos. Three zoo educator training courses are planned for the coming year in each region: in Nepal (Central Zoo) for South Asia; in Singapore (Singapore Zoo) for Southeast Asia; and in Taiwan for the zoos of that country. ARNIZE conducted a survey of Asian zoos to determine what percentage had education officers, printed materials, etc. as well as which techniques were most commonly used.

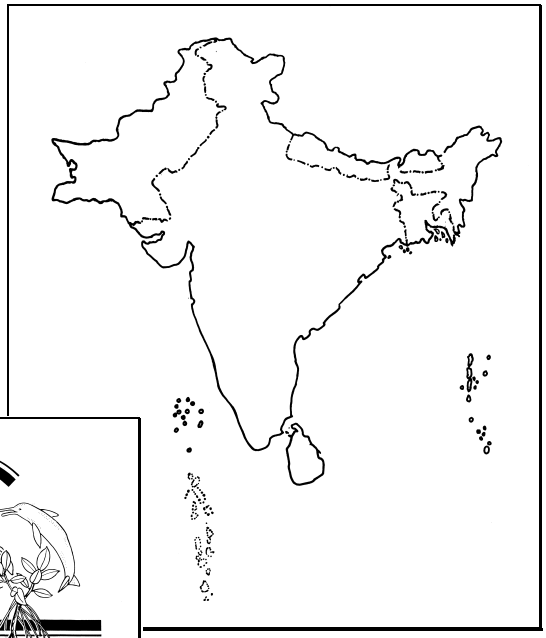
The Foundation for Revitalisation of Local Health Traditions, an Indian regional NGO for medicinal plant conservation, requested CBSG, India to conduct an exercise to determine priorities for establishing dynamic education programs in all 30 of the Medicinal Plants Conservation Parks. CBSG tools were used to teach the 30 park supervisors how to conduct workshops for their staff, prioritize educational goals, and create a strategic plan for training the 30 centers in educational techniques. ■

Submitted by Sally Walker, CBSG, India.

CBSG, South Asia

CBSG, India was formed as an experiment with the idea of expansion to cover the South Asian region. This year very specific actions are being undertaken to include other South Asian countries in CBSG activities initiated from India. All zoos of these regions have been contacted and sent relevant material. Relevant subject area specialists are being identified.

A CBSG meeting is envisioned in 2000 for all seven countries of South Asia in which the CBSG tools and processes will be demonstrated, training in CAMP & PHVA skills given, important species with a range throughout South Asia assessed, and objectives for the South Asian Region decided. Some news of South Asian countries' zoos follows.



Seven countries of South Asia include India, Nepal, Pakistan, Bangladesh, Sri Lanka, Bhutan and Maldives.

Pakistan

There are four government zoos in Pakistan, a private safari park, and 24 coordinated breeding centers according to the D.G., Wildlife, Pakistan. The Lahore Zoo has started an education department. The Islamabad Zoo is renovating and the government has invited the EAZA Office to assist with this task. This is being negotiated.

Nepal

The Central Zoo Master Plan is complete and awaiting final approval and revisions. Much work has already been done to improve conditions for animals in the zoo, and a comprehensive education program following an Education Master Plan has been established. Central Zoo will host the first South Asian Zoo Educator Course in March 2000.

Sri Lanka

The Colombo Zoo is under extensive renovation and a Master Plan is being developed. There is a new 100-acre modern zoo being developed in Pinnewala near the Elephant Orphanage.

Bangladesh

The Dhaka Zoo has had an outbreak of trypanosomiasis in tigers, which has caused much distress. After much communication, Dr. Arshad Toosey, Director and Veterinarian of Lahore Zoo, Dr. Arshad Toosey, visited the Dhaka Zoo to examine the animals and make recommendations to curb the outbreak and for prevention. ■

Submitted by Sally Walker, CBSG, India.

CBSG, Sri Lanka Report

CBSG, Sri Lanka organized a CAMP workshop for amphibians and reptiles at the University of Peradeniya, Sri Lanka in November 1998, facilitated by CBSG, India. More than 45 participants from 20 organizations were involved in the workshop. John Wilkinson from the DAPTF office in the UK attended, his flight supplied by British Airways. The CAMP was sponsored by the Philadelphia Zoo, Columbus Zoo, and Zoo Outreach Organisation. A total of 56 amphibians (22 threatened) and 123 reptiles (75 threatened) were assessed using the IUCN Red List Criteria. ■

Submitted by Sally Walker, CBSG, India.

CBSG Indonesia Report

Warm greetings from CBSG Indonesia Program! The political and economical unrest in Indonesia during the unpredictable first half of the year has passed. Statistics from the second half of 1999 have started to show signs of stabilization across most of the archipelago as the third millennium is approaching. We are optimistic with regard to our new president and new government and that the economy will recover.

Is the CBSG Indonesia Program ready to "Get what we left behind on track again"? Yes, we are ready! We owe special gratitude to CBSG Chairman, Ulysses S. Seal, and all of the CBSG staff for their continued support, and we look forward to an even closer and mutually beneficial relationship in the future.

Since 1992 CBSG has conducted several PHVA workshops in Indonesia. The predominant result of these PHVA workshops was the most important document ever produced in our country, which has created vigorous and vital conservation action ever since. Two notable projects are described here.

Sumatran Rhino Sanctuary (SRS)

The Sumatran rhino (*Dicerorhinus sumatransis)* has proven to be a formidable challenge to conservation. Mortality in captivity has been high, and today they only survive in captivity in four facilities worldwide. Moreover, to date no breeding has ever occurred in captivity. Evaluation of the captive program performance suggested that the surviving rhinos in captivity be consolidated in the most spacious enclosures and natural conditions (national park). Intensive protection and management are believed to be necessary because of the precarious situation in the totally free-ranging situation in the wild. This adaptively modified approach was initiated at a PHVA conducted for the Sumatran rhino in Indonesia in 1993, and has come to fruition in Way Kambas National Park. The Sumatran Rhino Sanctuary (SRS) is now fully operational and we look forward to breeding success in the near future.

Sumatran Tiger Project (STP)

Indonesia formally declared the importance of linking *in situ* and *ex situ* tiger conservation activities through the *Indonesian Sumatran Tiger Conservation Strategy* (Ministry of Forestry, 1994) and the *PKBSI Sumatran Tiger Masterplan* (Indonesia Zoological Parks Association, 1998). This is quite different than all other tiger range countries, which have not linked field and captive conservation priorities. Currently we are developing a strategy for another four years of active tiger conservation, to extend the ground-breaking work carried out in the captive and wild programs so far.

An illustrative example of the growing importance of this *in situ* and *ex situ* linkage, the *World Zoo Conservation Strategy* recognizes that "zoos need to build up a partnership in conservation to become true conservation centers".

We at the CBSG Indonesia Program are proud to be the hosts for two Indonesia workshops in the year 2000, first a CAMP for Indonesian primates and second, a PHVA workshop for the banteng (*Bos jawanicus*). We hope to see you in Indonesia. ■

Submitted by Jansen Manansang, CBSG Indonesia.

Photos courtesy of Directorate General of Nature Protection and Conservation, Ministry of Forestry and Estate Crops, Republic of Indonesia, Sumatran Tiger Project, Way Kambas National Park.

Invertebrate Working Group Report

We agreed that the group's founding remit (see meeting briefing book) remains both valid and pressing. We went on to discuss the following action areas:

Development of Regional Invertebrate Groups

- Well-developed invertebrate groups are now active for South Asia, Europe, North America and, most recently, the ARAZPA region. The ARAZPA Invertebrate TAG has burst onto the scene with a number of initiatives already realized, including *The Invertebrator* newsletter, a husbandry workshop, and an embryonic recovery program for the golden sun moth.

- It is clear that the substantial Japanese invertebrate community is ideally placed to address this area's regional and international networking requirements. To this end, Tama Zoo's survey of living invertebrate collections in Japan is a most valuable initiative.

- Michael Samway's willingness to do what is practical to cover the Africa/Middle East region was unanimously welcomed and seen as the best chance of ensuring this important region is not neglected.

- Southeast Asia and Central/South America are two major regions requiring attention. For Southeast Asia, it is recognized that Singapore Zoo's new invertebrate resource is ideally placed to play a leading role. It was acknowledged that the further development of, and networking among, the regional groups remains a prerequisite to realizing our shared conservation objectives.

Web Invertebrate Conservation Database

We discussed the progress and composition of the above database which is now in the final stages of construction. It is hoped that colleagues in the zoo, university and museum communities will be able to test it before the end of the current year. As stipulated, it includes comprehensive contact and collection directories, species data logging facility and keeping guideline fields. It also incorporates a newsletter and discussion forum.

Current Breeding Programs

In addition to the international program for *Partula*, we discussed the growing number of regional program initiatives (currently most advanced in the AZA and EAZA regions). The value of compiling a set of case studies on these programs was agreed. It was also agreed that such a review should include reference to the educational and cultural aspects of such programs.

Education and Awareness Issues

A fundamental need remains for invertebrate taxa to be effectively incorporated into educational program initiatives as undertaken by the WZO Zoo Educators Group. It was also agreed that we need to continue efforts to compile guideline information on exhibit and program species care. The realization of our database should greatly facilitate the compilation and distribution of such data.

Links to SSC Invertebrate Specialist Groups

We took advantage of Susan Mainka's participation to discuss how this conservation-breeding focused group might best assist and relate to the SSC in general and the SSC invertebrate Specialist Groups in particular (see full group list). The following areas were considered as having the most relevance:

- Helping SSC compile the Red List 2000.
- Contributing to the Red List criteria review process.
- Contributing to the rejuvenation of the Invertebrate Conservation Task Force.
- Where available, providing field data to the Specialist Groups and assisting in the development of new species programs.
- Participating in the current review process of the effectiveness of existing Species Action Plans.
- Contribute to the new Pollinator Specialist Group.
- Providing much needed data to CITES invertebrate case reviews, including related trade data and the potential of developing *ex situ* culture options. It was also stressed that we should collaborate with TRAFFIC as fully as possible when attempting to address illegal trade issues (e.g., theraphosids).
- The Invasive Species Group was seen as a good model in terms of providing valuable and swift information.
- We should examine the potential for linking to an SSC list server.

The importance of realizing our own group's aims and objectives was seen as a prerequisite to our being able to provide such assistance as outlined above.

Invertebrate Specialist Groups and Web Sites

SSC Invertebrate Specialist Groups

- Invertebrate Conservation Task Force
- Inland Water Crustacean Specialist Group
- Lepidoptera Specialist Group
- Mollusc Specialist Group
- Odonata Specialist Group
- Orthopteroid Specialist Group
- Social Insect Specialist Group
- Water Beetle Specialist Group

SSC Invertebrate Web Sites

- SSC Web Site
  http://www.iucn.org/themes/ssc/index/html
- Social Insect Specialist Group
  research.amnh.org/entomology/social_insects
- Mollusc Specialist Group
  http://bama.ua.edu/~clydeard/IUCN-SSC_html/index.htm

Input on Other CBSG Working Groups

The importance of providing an invertebrate perspective to other relevant working groups was acknowledged. To that end, it was agreed that the strategy of staggering the times when this group convenes is the most practical way of ensuring such representation is possible. ■

Submitted by Paul Pearce-Kelly, Working Group Convenor.

Amphibian Working Group Report

The Amphibian Working Group was convened to discuss the role of such an Interest Group within CBSG in a broader conservation perspective. The working group was introduced to the networking efforts of the Declining Amphibian Populations Task Force South Asian network initiative and the goals achieved to date. The network was acknowledged as a model for other regions to follow, though the Australian network is equally productive in the region.

Various goals and objectives were discussed for the first year of the network, and it was felt that since there are many networks for *in situ* conservation of amphibians, a network for *ex situ* conservation was required. It was quickly realized that regional zoo associations were primary contacts, and other players should be identified, such as individuals and institutes involved in captive breeding of amphibians for commerce or research. A clear difference was noted between the developed regions where there is a good awareness and research on keeping and breeding amphibians in captivity, and the underdeveloped regions (where much of the amphibian diversity exists) which have little expertise or knowledge in this area. One of the main objectives of the network is to link these two regions through technology transfer and the interactive management of amphibians between the wild and captivity.

The objective of the network was identified as: *To create a network of zoos and like institutions, research institutes and individuals with potential for keeping and breeding amphibians in captivity for conservation; and to link ex situ potential with in situ needs according to the conservation status of amphibians around the world.* Several tasks were identified for the first year:

- Link with regional efforts around the world among regional zoo associations and other organizations.
- Identify more individuals and institutes around the world involved in captive amphibian propagation.
- Assemble guidelines for effective captive management and recovery based on the experience of successful facilities and programs.
- Disseminate these guidelines as well as success stories demonstrating the potential of captive propagation in recovery of declining amphibian populations.
- Compile techniques used around the world on keeping and breeding amphibians.
- Encourage capacity building in underdeveloped zoos.
- Initiate a few model captive breeding programs in areas where they do not exist, with the help of experts in the field, in the next 3-5 years.
- Promote awareness in the *in situ* community of the potential and advantages of captive propagation in the recovery of declining amphibian populations. ■

Submitted by Sanjay Molur, Working Group Convenor.

Elephant Working Group Report

Following are updates from various zoo associations and range states.

ARAZPA

Four zoos hold approximately ten (3.7) Asian and two (0.2) African elephants (to be confirmed). Two zoos (Taronga and Melbourne) are building new facilities. Issue for ARAZPA include:

1. "Hands off" management for males and "hands on" management for females is recommended.
2. The optimum number of animals in a group is currently considered to be 4-5 animals (0.4 or 1.4).
3. No animal rights problems have been experienced.
4. Genetically important Asian males may be present in the Australasian Species Management Plan.
5. The population is not sustainable under present conditions. There are problems associated with importation and placement of surplus animals.

A planning workshop was held in Adelaide last year to develop common management regimes, including the design of "off-limits" and animal handling facilities. This was essential to enable animals to move freely between collections.

No more imports or breeding is to occur at present. This policy will be reviewed every few years. Breeding will only be considered if all offspring can be placed.

Due to small population size, ARAZPA Species Management Plans must link with species management programs in Europe and the US if it is to be sustained.

EAZA

Elephants in zoos are maintained in a large variety of enclosure types and management regimes, some of a high standard and some currently very inadequate. Issues for EAZA are:

1. Too few facilities are breeding elephants to maintain a sustainable population within Europe.
2. Logistical problems associated with movement of male elephants can be overcome with planning and appropriate crates and vehicles.
3. There is need to develop larger groups of elephants and to improve conditions for smaller groups.
4. Most transfers have been young animals, contrary to dispersal in the wild. As a result social rules may not be learned and unstable groups may be created.
5. Animals should be allowed to choose companions for sleeping and socializing.
6. Animal rights is becoming an issue. There is a need for clarity regarding what is acceptable and for zoos to be able to defend their policies.
7. There is a lack of consensus within the zoo community on what acceptable for elephants to do for the public (rides/exercises/shows) and what handling techniques are acceptable.
8. There are problems working with circuses for breeding and animal transfers.

A number of meetings have been held recently to address these issues, including the 1999 EEP Meeting at Basle Zoo, Switzerland and an Elephant Management Workshop at Howletts Zoo, UK. There was consensus in the EEP that animals should be moved together in groups, and not until they were 8-10 years old. EEP guidelines recommend that females form stable groups and that males be moved to facilitate breeding. In the future a group of breeding males is planned in Europe that could be moved, imitating the wild. "Hands on" management is desirable in order to perform daily care. There is no consensus on "protective contact" versus "free contact". EAZA now recommends that elephants should not be imported from the wild without approval from the species coordinator. The EEP decided <u>not</u> to work with circuses.

AZA

Issues for AZA include:

1. Demographic problems for maintaining populations (study conducted by R. Wiese).
2. Need for justification for the reasons for keeping elephants in zoos (IUCN Request).
3. Need for a policy on the relationship with circuses and elephant transfers (PETA request).
4. SSP program not working as well as planned and a need to facilitate the process.

Three meetings were organized to enable discussion across a broad range of disciplines. A core committee of people was brought together to collate ideas based around demographic needs to for sustainability, husbandry and veterinary needs for better management, and linkage between captive populations and *in situ* conservation/potential for importation.

A confidential draft of consensus and non-consensus recommendations will be reviewed at the AZA Directors retreat in January, after which it will go to the AZA Board for adoption. Zoos are encouraged to build new facilities to hold at least one male and consideration is being given to building separate regional holding facilities for males.

CBSG Donor News

Inside...

The Newsletter for the Donors of the Conservation Breeding Specialist Group, Species Survival Commission, The World Conservation Union (CBSG, SSC, IUCN)

The Chicago Zoological Society & Brookfield Zoo

The Brookfield Zoo, managed by the Chicago Zoological Society, is a world-class zoo and breeding center located in the heart of metropolitan Chicago. Home to animals representing more than 400 species in 20 naturalistic exhibits within the zoo's 216 acres, the Brookfield Zoo and Chicago Zoological Society have been supporters of CBSG from the start. The zoo's mission is to help people develop a sustainable and harmonious relationship with nature. Conservation of wildlife and the discovery of biological knowledge are part of this mission, which ties in directly with CBSG's mission of catalyzing action for endangered species survival through the linkage of *in situ* and *ex situ* conservation efforts. The zoo prides itself on its ability to assist CBSG and support its own conservation programs including captive propagation of endangered animals, research on genetics, nutrition and behavioral biology and ecology, local and international field conservation programs and small grants programs to assist wildlife conservation efforts.

CBSG & CZS Collaborations

- VORTEX
- Human Dimension
- World Zoo Conservation Strategy
- Florida Panther PHVA
- Humbolt Penguin PHVA
- Puerto Rican Parrot PHVA
- Asiatic Lion PHVA
- Kirtland's Warbler PHVA

The CBSG Connection

Since its inception, CBSG has received support from the Chicago Zoological Society in many ways. In 1990, its Presidential Award was presented to CBSG Chair Dr. Ulysses S. Seal in recognition of his many amazing contributions to the conservation of species through his leadership of CBSG.

The World Zoo Conservation Strategy is a landmark document linking *in situ* and *ex situ* conservation efforts. It was produced as a joint effort of the World Zoo Organization (WZO) and CBSG, edited by Bert de Boer and published by the Chicago Zoological Society in 1993 at the urging of Dr. George Rabb, Brookfield Zoo's director. Dr. Rabb's involvement with CBSG has included service on its Steering Committee in addition to his chairmanship of the World Conservation Union (IUCN)'s Species Survival Commission (SSC) from 1989 to 1996.

Dr. Robert Lacy, Brookfield Zoo's population geneticist, worked closely with CBSG staff as he developed VORTEX, the software package used for population modeling in CBSG PHVA workshops. He continues to improve the program and also maintains the VORTEX list serve where users of the software can exchange ideas on its use and have questions answered by their peers. Dr. Lacy also plays a key role in the growth and development of the CBSG Human Dimension initiative. The initiative attempts to identify human-related activities that impact species populations and habitats and incorporate them into population viability simulation models. Dr. Lacy also assists with population modeling at many of CBSG's PHVA workshops, including those conducted for the highly publicized Florida panther.

Lacy

Breeding

Coordinating Species Survival Plans (SSPs) includes the responsibility of managing captive populations of species for long-term survival as well as support of wild population management for those species. Brookfield Zoo staff coordinate SSPs for the following species: Humbolt penguins, African wild dogs, okapis and Goeldi's monkeys. CBSG has conducted PHVAs on two of these species: the Humbolt Penguin in Chile in 1998 and the African wild dog in southern Africa in 1997. Other workshops resulting from collaboration between CBSG and Brookfield Zoo include PHVAs for the Puerto Rican Parrot, Asiatic Lion and Kirtland's Warbler. Each of these workshops has had a positive conservation impact on the species involved.

Brookfield Zoo also participates in SSPs for an additional 29 animal species and has managed successful breeding programs for all of them. In addition, it has long fostered breeding programs for the tanagers. This work on a neglected family of songbirds was recognized by the Edward Bean Award of the American Zoo and Aquarium Association (AZA) in 1999.

Research

Research in genetics, nutrition and behavioral biology and ecology is critical for the survival of highly endangered species, and Brookfield Zoo takes its role in research seriously. Many of the zoo's conservation and research programs are conducted in the Daniel F. and Ada L. Rice Conservation Biology and Research Center. The genetics program encompasses population and molecular genetics, and provides a variety of services to conservation efforts both *in situ* and *ex situ*. A component of basic genetic research is understanding the effects of inbreeding, which is deleterious to the survival of small populations of almost every species. The studies have included the effects of inbreeding on parental behavior, viability of animals reintroduced to the wild, etc. Besides the development of VORTEX , the zoo's genetics department has also developed the GENES software package for use by zoos in planning the genetic management of captive breeding programs. The zoo's molecular genetics lab provides services for zoos worldwide and has pioneered techniques to identify the sex of penguins and other monomorphic bird species. Taxonomic research in the lab has also clarified the status of several species including primates and marsupials.

Animal behavior studies have been a part of Brookfield Zoo's programs since the 1950's. Research programs pioneered by its behavioral researchers include the social structure of wild baboons in Kenya, reproductive behavior of pipid frogs, social behavior of captive wolves, maternal-infant development in ungulates, and behavior of wild bottlenose dolphins in Australia and North America, including detrimental interactions with humans.
The communications research staff is also engaged in understanding the affiliation of people with animals and determining the effectiveness of the zoo's conservation communications.

The zoo's Nutrition Services Department is one of only six in the United States. It has played a crucial role in adding information to the global nutrition database through research studies. It has also helped resolve nutrition problems, pool scarce resources and evaluate untapped research information. The zoo provides its animals with the best possible diets.

Conservation Efforts

Northeastern Illinois is home to two of North America's rarest ecosystems: the tall grass prairie and the oak savannah. Through a partnership with the Chicago Wilderness Project, a network of more than 98 organizations and government agencies, the zoo is working to protect, manage and restore these and other ecosystems in the Chicago area. The zoo is also home to the Chicagoland Environmental Network (CEN), a consortium of over 250 local environmental organizations that links people to volunteer opportunities in local conservation projects.

The Chicago Zoological Society is also involved in a major effort in community-based ecosystem management at the Bookmark Biosphere Reserve in South Australia, an outgrowth of earlier work at the Brookfield Conservation Park north of Adelaide. The latter was established in 1971 as a reserve for the hairy-nosed wombat, but became a conservation research site devoted to understanding ecological factors in the arid mallee environment.

Some of Brookfield Zoo's international work is conducted through involvement with several of the 110 specialist groups of the SSC, including collaborations with CBSG. Tim Sullivan, head of the Zoo's Conservation Biology Department, has served as facilitator for IUCN's work on African elephant conservation and other issues. During his tenure as chair of the SSC, Dr. Rabb established the Declining Amphibian Populations Task Force that he continues to be involved with today. In 1999 he summarized the work on the amphibian crisis at the Cincinnati Conference on Breeding Endangered Species. The George B. Rabb IUCN/SSC Internship Program was established by the SSC in 1996 to commemorate his leadership. In 2000, the first intern will work on IUCN's Red List of Threatened Species.

Small Grants

Two small grants funds of the Chicago Zoological Society, the Conservation and Research Fund and the Chicago Board of Trade Endangered Species Fund, provide support for conservation and research projects by outside parties. Preference is given to those projects that complement the husbandry, education, research, or field conservation programs of the Society. These funds have supported ~300 conservation projects in the past ten years.

Future

The Brookfield Zoo/Chicago Zoological Society's commitment to conservation and its promotion of a conservation ethic are vital components of the worldwide effort to save endangered species and their habitats. A recently established collaboration with Loyola University's Stritch School of Medicine and University of Illinois School of Veterinary Medicine is termed the Conservation Medicine Center of Chicago. It will focus on the incidence of zoonotic disease and the immune status of wild animals. The zoo also plans to expand as a center for conservation psychology. CBSG is fortunate to have a highly productive relationship with both the Chicago Zoological Society and Brookfield Zoo and looks forward to many collaborative efforts in the future.

Participants in Recent CBSG Workshops

Red Wolf PHVA
Virginia Beach, Virginia
13-16 April, 1999

Arizona State University, US
Phil Hedrick
CBSG
Onnie Byers
Phil Miller
Ulysses Seal
Defenders of Wildlife, US
Nina Fascione
Metro Toronto Zoo, Canada
Karen Goodrowe
Minnesota Zoo, US
Kathy Traylor-Holzer
National Zoological Park, US
Mary Hagedorn
North Carolina Zoological Park, US
Randy Fulk
North Carolina State University, US
Karen Beck
Michael Stoskopf
Oklahoma City Zoo, US
Jack Grisham
Point Defiance Zoo & Aquarium, US
Will Waddell
Trent University, Canada
Paul Wilson
Turner Endangered Species Fund, US
Mike Phillips
University of California, US
Bob Wayne
University of Idaho, US
Dennis Murray
University of Massachusetts, US
Todd Fuller
University of Waterloo, US
John Theberge
Mary Theberge
US Department of Agriculture, US
Eric Geese
Fred Knowlton
US Fish & Wildlife Service, US
Ed Bangs
Art Beyer
Mike Bryant
Brian Cole
Jennifer Gilbreath
Gary Henry
Brian Kelly
Chris Lucash
Ford Mauney
Scott McLellan
Michael Morse
Kathy Whidbee
US Geological Survey, US
Dave Mech
Wild Canid Survival & Research Center, US
Sue Lindsay
Wildlife Conservation Society,US
George Amato
Yellowstone Center for Resources, US
Doug Smith
Participating Stakeholders
Gloria Bell
Mike Chamberlain
Dave Flemming
Ron Nowak
Aubrey White

Florida Panther PHVA & Genetics Workshop
Gainsville, Florida
8-11 June 1999

Arizona State University, US
Phil Hedrick
Big Cypress National Preserve, US
Deborah Jansen
Brookfield Zoological Park, US
Robert Lacy
CBSG
Susie Ellis
Ulysses Seal
Department of Environmental Protection, US
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Everglades National Park, US
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Larry Richardson
Participating Stakeholders
Holly Jenson
Roy McBride
Steve O'Brien
Melody Roelke

Costa Rican Medicinal Plants CAMP

San Jose, Costa Rica
20-23 June 1999

ACCVC, CostaRica (CR)
Randall Araya Villalobos (Grecia)
ACO, CR
Victoria Llinas Ruiz
Asociacion Andar, CR
Ramon Fallas Porras Edith Gommers
Andrea Chaverri Gerardo Soto
Asociacion Costarricnese para la Conservacion de las Orquideas, CR
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C.N.P., CR
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Laboratorio Ensayos Biologicos, CR
Mildred Garcia Gonzalez
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Ministerio de Salud, CR
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Museo Nacional, CR
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SINAC (MINAE, SINAC-ACOPAC), CR
Juan Rodriguwz Rolando Manfredi Abarca
TRAMIL, Honduras
Maritza Martinez Molina
U. Nacional Esc. de C. Biologicas , CR
Dora Ingrid Rivera

Desert Bighorn Sheep of New Mexico PHVA

Santa Fe, New Mexico
27-30 July 1999

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Arizona Game & Fish Department, US
Ray Lee
Arizona State University, US
Phil Hedrick
Bighorn Institute, US
Jim DeForge Stacey Osterman
Bureau of Land Management, US
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Hornocker Research Institute, US
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New Mexico State University, US
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Carlos Manterola
University of Arizona, US
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Walter Boyce Esther Rubin
US Fish & Wildlife Service, US
Kevin Cobble Mara Weisenberger
Laurel Kagan Wiley

Giant Panda Conservation Assessment & Research Techniques Workshop

Wolong, China
4-8 October 1999

AZA & NAPE Office, China
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Beijing University, China
Xiao Jian Wen-Shi Pan
Ding-Zhen Liu Da-Jun Wang
Wang Hao
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Gansu Baishuijiang Reserve, China
Zhang Tao Wen-Yun Yang
Giant Panda Research Base, Chengdu, China
An-Ju Zhang Zhi-He Zhang
Giant Panda Research Base, FuZhou, China
Yu-Cun Chen
Institute of Forest, Sichuan, China
Shao-Ying Liu
Institute of Zoology of China, China
Zuo-Jian Feng
Kunmin University, China
Ya-Ping Zhang
Memphis Zoo, US
Chuck Brady
National Zoo/Smithsonian/CRC, US
Devra Kleiman David Wildt
William McShea
Ocean Park, Hong Kong
Nathalie Mauroo
San Diego Zoo, US
Mabel Lam Donald Limberg
Sichuan Forestry Department, China
Huang-Shi Peng Xiang-Sui Deng
Shi-Jun Yuan
Sichuan University, China
Jin-Cu Hu Wen-He Feng
State Forestry Administration, Beijing, China
Yong-Fan Liu Yan Xun
Shan-Ning Zhang
Tang Jia He Nature Reserve, Sichuan, China
Wei-Fu Ou Jian Xin Deng
Wolong Nature Reserve, China
Yi-Rong Zhou Ying-Chun Tan
He-Min Zhang Peng-Yan Wang
Wei-yu Li Ting-Mei He
Chun-Xiang Tang Jin-Yan Huang
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Lin-Qiang Chen Feng Li
Yang Jian Da-Ming Fu
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Zoo Atlanta, US
Sarah Bexell
Participating Stakeholders
Xue-Hua Liu Brook Elwarls
Matthew Durnin Xing-Huai Zhou

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$35.00

Costa Rican Medicinal Plants CAMP Report Vol. 1 & 2 *(Spanish)*
$45.00

Costa Rican Orchids CAMP Report Vol. 1 & 2 *(Spanish)*
$35.00

Mexican Pinniped CAMP *(Spanish)*
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Humbolt Peguin PHVA
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VORTEX 8
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Giant Panda Conservation & Research Techniques Workshop Briefing Book, **$45.00**

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CBSG Scheduled Workshops & Meetings

This schedule is tentative and expected to change.

CBSG Staff Attending: (S)=Ulysses Seal, (E)=Susie Ellis, (B)=Onnie Byers, (M)=Phil Miller, (SO)= Shelly O'Brien, (JS)=Jenny Shillcox

Meeting Dates:		Location:
January	21-25	Isla de Juventud, Cuba: Cuban Crocodile PHVA (S)
	23-28	Yangon, Burma: Eld's Deer PHVA (E, J.Ballou)
	28-30	Syracuse, NY: Network Meeting (S,B,M)
February	31-1	Palm Springs, CA: Living Desert Conservation Pre-Planning Mtg. (S)
	7-11	Dubai, UAE: Arabian Carnivore CAMP & Leopard PHVA (S, D.Armstrong, C.Belden)
	15-18	Toronto, Canada: Algonquin Wolf PHVA (B, M, K.Holzer, K. Goodrowe)
	14-16	Amsterdam: ISIS Futures/Planning Search (S)
	17	Gland, Switzerland: IUCN Meeting (S)
	21-24	Houston, TX: Houston Zoo Collection Planning (S,JS)
	18 Feb-10 Mar	China: Third Giant Panda Biomedical Survey Mtg. (E,Wildt)
March	6-8	Dominican Republic: CAMP (S, Y.Matamoros)
	20-24	Jacksonville, FL: SSC Planning Mtg. & Executive Committee Mtg. (S, M?)
April	30 Mar-1Apr	Omaha, NE Henry Doorly Zoo: Disease Risk Workshop (S, M)
	3-5	Toronto, Canada: Zoo Planning Mtg. II (S,JS)
	26-28?	Chicago, IL: Shedd Aquarium Conservation Planning Mtg. (S, E,B?)
May	1-5	Uganda: Chimp Sanctuary Workshop (S, B, N.Rosen)
	8-9	Houston, Tx: Zoo Conservation Planning Mtg. (S)
	10-24	Indonesian Primate CAMP, Tiger PHVA & Bantang PHVA (S, M, B)
June	2-3	Fort Worth, TX: Elephant Research Symposium (S, E?)
	5-9?	Indianapolis, IN: "Relevance of Nuclear Transfer to Conservation" (E, D. Wildt)
.	5-9	El Salvador: Mesoamerican & Caribbean Zoo Assoc. Mtg. (S,B)
	19-23	Costa Rica: Red Listed Species Mtg. (S,B)
	26-29	Costa Rica: Crocodile PHVA (S,M)
July	June/July?	Thailand: SEAZA Workshop & WZO Asia in-situ Conservation Workshop (S)
	11-14	New England Wolf Restoration Mtg. (S, M, N.Fascione, D. Kleiman?)
		Brazil: Atlantic Forest Primate CAMP (S)
	24-26	Stellenbosch, South Africa: S. African Frog CAMP (E.Wildt)
August	8-11	Colorado: So. Rockies Wolf PHVA (M,S?,B?)
	25-29	Jacksonville, Fl: CBSG Futures Search (S,E,B,M,Wildt, SO, JS)
		.
September	13-15	New Orleans, LA: Disease Workshop (S, M, J.Ballou, D.Armstrong)
	24-28	Lake Buena Vista, FL: AZA Annual Conference (?)
	25-29	Quito, Ecuador: CAMP (S, E, F.Westley, H.Vredenburg, B?,M?)
October	1	Guadalajara, Mexico: IZE Pre-Conference: Facilitation Training Workshop (S)
	4-11	Amman, Jordan: IUCN World Conservation Congress (S)
	15-18	San Diego, CA: Panda 2000: Conservation Priorities for the New Millennium (S?,E,Wildt)
	17-21?	Palm Desert, CA: Global Cheetah Masterplan Mtg. (E, Wildt,B?)
	19	Palm Desert, CA: CBSG Steering Committee Mtg. (S,E,B,M)
	20-22	Palm Desert, CA: CBSG Annual Mtg. (S,E,B,M)
	23-26	Palm Desert, CA: IUDZG/WZO Meeting (S)

The CBSG Conservation Council

These generous contributors make the work of CBSG possible

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December 1999

Thank You!!!

India

There are five (3.2) African elephants and 84 (28.56) Asian elephants currently held in Indian zoos.

Project Elephant targets *in situ* conservation of elephants. The main issues are improving habitat, developing corridors and limiting elephant-human conflict. Elephant-related issues in India are:

1. New regulations state that no captive elephant can be kept tethered. Zoos should have open-moated enclosures for housing elephants, which is expensive. Breeding is incidental and there is no policy on surplus animals at government level.
2. Elephant rides in zoos have been banned and elephants are only used for logging in the Andaman Islands and parts of Southern India. A few elephants are used for tourism in national parks and are occasionally used for wildlife patrols.
3. Habitat fragmentation is the main problem in the wild. There are major problems with roving wild elephants in poor quality habitat. Elephant-human conflict results in more than 200 human deaths per year. Translocations have been stopped due to criticism on welfare grounds. In Project Tiger areas financial help is provided as compensation for loss of crops and human life. Northwest India is not protected but is the area most likely to have sustainable wild populations.
4. The capture of wild elephants is not encouraged unless necessary to manage rogue animals.
5. There are a large number of unemployed elephants that need the opportunity for retirement.
6. Temple elephants are a problem.

A mahout guide has been published by Zoo Outreach Organisation, and the Asian Elephant Research Center is preparing a manual on limiting human-elephant conflict.

Thailand

There are estimated to be fewer than 2,000 wild elephants. More than 2,000 elephants in held in captivity. There are approximately 100 national parks and 50 wildlife sanctuaries. Issues in Thailand are:

1. Poaching is a problem. Tusked males do not survive in the wild. Very young elephants are also taken for tourism in Burma and Thailand.
2. Illegal loggers sometimes use to make elephants work harder; drugged animals sometimes "go berserk" and need to be shot.
3. There are 250 - 300 elephants roving in many cities. Some locals make money by charging tourists to feed the elephants, which can be very lucrative. Problems occur due to the heat, roads and inexperienced handlers. In Bangkok elephants have been recently banned. Arrested mahouts often abandon their elephants at the police station, leading to unwillingness of the authorities to implement the regulations.
4. Elephants are frequently used in tourist trekking. They are often overworked during the height of tourism season and are underfed and drugged.
5. Some attempts have been made at rehabilitation but a number of animals have been killed by snakes due to lack of behavioral preparation and training.
6. In zoos elephants are used for rides and mock battles. The management of these animals is cause for concern.

Great problems exist but no clear solutions are suggested at present. Many meetings have occurred but decisions have never been put into action. There is a lack of acceptable regulations. The Forest Industry Organisation (FIO), now called Elephant Conservation Center, has taken many elephants and a center has been built to accommodate about 80 elephants. The government is currently discussing the creation of a well-funded elephant department to take confiscated elephants and assess options (e.g. soft release). This is currently under discussion. Culling is not considered an option due to cultural and religious sensitivities.

Collaborative Efforts

A proposal was made to hold a two-part meeting coordinated by CIRCC /WZO with assistance from CBSG. Part 1 would consist of a closed session of regional zoo associations representatives and appropriate consultants to clarify consensus. Part 2 would involve an open session to discuss specific zoo involvement in *in situ* conservation and would include other interested parties. Michael Hutchins will investigate possible venues and funding opportunities. Suzanne Boardman will collate regional standards on elephant care/management and distribute them on CD-ROM in advance of the meeting.

The working group also proposed to encourage collaboration with the IUCN African and Asian Elephant Specialist Groups. A zoo representative should attend the next meetings of the Steering Groups and present these concepts. ■

Submitted by Michael Hutchins, Working Group Convenor.

Lion Working Group Report

Lions are emblematic of the predators of Africa. A working group was convened to discuss issues relevant to conserving this keystone species into the new millenium. Working group members identified more than 30 issues facing lion conservation today. These were collapsed under general topics and then discussed.

Surveys and Estimated Lion Status

The group agreed that the purpose of conducting a survey of lions in nature is to:

- determine conservation and research priorities;
- develop and/or modify management plans; and,
- ultimately determine the demographic and genetic viability of lions in nature.

Surveys should be as accurate as possible; monitor population size and trends in the same geographic area; collect data from diverse sources; and include information beyond simple numbers (e.g., age structure, sex ratio). Information, including methods and results, should be shared extensively with others.

Current IUCN categories of threat were used to estimate lion status in countries where the participants had at least some experience:

South Africa. There are about 2,000 lions in Kruger National Park (NP), 1,000 in adjacent private areas, 120 in Kalahari Gemsbok NP and 500 in captivity. Lions probably are at 'low risk' (conservation dependent); however, certain areas are likely to require more attention (i.e., Natal).

Namibia. There are about 340 lions, including 170 in Etosha NP. As a country, lions range from being at 'low risk' (conservation dependent) to 'vulnerable'.

Botswana. There are about 1,200-1,600 lions in the Okavango Delta, 50 in Makgadigadi, and many lions outside of protected areas. For the country, lions are 'low risk' (conservation dependent). However, certain areas are likely to be 'geographic-specific' and require more attention (i.e., 'vulnerable' in Central Botswana).

Uganda. There are fewer than 250 lions in the entire country; therefore, the lion is 'endangered'. Certain areas are highly 'geographic-specific' (e.g., 'critically endangered' in Murchinson Falls and Kidepo Valley).

Zimbabwe. There was insufficient expertise to give an estimate. For the country, lions are likely to be 'low risk' (conservation dependent). Areas that are exceptions include the Zambesi Valley and Hwange.

Tanzania. Lion numbers could not be estimated, but information is available. For the country, lions are likely to be 'low risk' (conservation dependent), but 'vulnerable' in hunting concession areas.

Kenya. There was too little experience to estimate lion numbers, but in this country, the species is likely to be 'low risk' (conservation dependent).

Nigeria. There are about 200 lions restricted to game reserves, with few individuals living outside protected areas. Prey availability is low, so the killing of cattle is a problem. There is a loss of lions from Nigeria to the Cameroon where there is better protection.

There are definite gaps in status data for the lions of Africa, especially in western and central Africa and parts of southern Africa.

Survey Techniques

The group agreed that no single survey method is universally acceptable. Advantages and disadvantages of the following methods were discussed:

- Calling stations without bait
- Calling stations with bait
- Spoor transects (50 km)
- Aerial surveys
- Mark/recapture
- Radiotelemetry
- Fecal counts
- Lion vocalization
- Interviewing local people (questionnaires)

The conclusion is that the survey method chosen depends on project objectives, geographic site, time and funds available, information needed and level of required statistical confidence. Aerial surveys, fecal counts or lion vocalizations are not recommended. The other methods are endorsed. At least two survey methods should be combined wherever possible. For any given geographic area, the survey technique should not be changed over time, thereby allowing data to be statistically analyzed from one survey to another.

Reproduction and Pride Structure

The group recognized the need for more studies on reproduction and pride structure. There are currently gaps in knowledge, there may be geo-specific differences among lion groups, and new techniques are available that will allow a more integrative understanding of reproductive success and pride structure. This new knowledge has potential management applications.

Trophy Hunting

Although it was recognized that high trophy hunting quotas are likely having a negative impact on lions in Zambia and Tanzania, the group realizes that this approach may be a legitimate form of sustainable use. However, there is a gap in knowledge about formulating appropriate, conservation-oriented trophy hunting, including developing quotas that do not harm population viability. This is a high priority issue.

Lion Subspeciation

The working group recognizes only *Panthera leo leo* and *P.l. persica* as subspecies. However, there are comparative data from other species that suggest lions of western Africa may be genetically distinct. Because such a finding would have important management implications, it is imperative to genetically assess the lions of western Africa.

Genetic Diversity and Analyses

In general, inbreeding depression is not affecting lions in nature, with the possible exception of lions in Umfolozi, Ngorongoro Crater and the Gir Sanctuary. However, since many lions exist in isolated populations and fragmentation is growing, the working group recommended genetic monitoring during all surveys. For consistent data analyses, molecular assessments should be conducted in a single laboratory experienced with felids. Furthermore, research into pride structure via molecular analysis is encouraged to understand genetic relatedness effects among females, coalitions of males and for sorting out paternity. Such knowledge may have significant management value.

Captive Lion Management

Lions maintained in captivity by PAAZAB should be genetically managed. This requires breeding lions of known origin from South Africa in cooperation with the North American Species Survival Plan. Lions of unknown origin should be removed from South African zoos, or at least not bred. The working group opposes importing lions of unknown origin, either for zoos or for reintroduction.

Proposed Workshops

The IUCN Cat Action Plan indicates that lions are a high priority for conservation action. However, the public perceives lions as common and not a threatened species. This perception problem needs to be resolved.

There is a need for two formal meetings, a workshop to develop a survey plan for determining lion status in western and central Africa, and a larger conference to discuss in more detail many of the lion issues identified in this working group. The working group recommends that IUCN Cat Specialist Group, with assistance of CBSG, lead these initiatives. The lion survey workshop is of utmost priority, while the larger lion conference should occur in about three years, coinciding with the completion of several ongoing field studies.

The purpose of the survey workshop is to develop a plan for understanding conservation and genetic status of wild loins in western and central Africa. Workshop goals are to:

- Assemble known information.
- Identify high priority areas for survey.
- Identify obstacles and solutions to allow surveys to proceed in areas where they have not been done.
- Arrive at consensus on highest priorities for immediate attention.
- Construct a plan with stakeholders. Issues may include training, geo-specific methodologies, identifying resources and time lines.

Specific actions were identified to initiate the development of these lion meetings. ■

Submitted by David Wildt, Working Group Convenor.

Bushmeat Working Group Report

Defining the Problem

This working group convened to address the problem of the growing demand for and unsustainable utilization of wild populations of animals for protein and/or for profit (i.e., bushmeat). Causal factors can be divided into several categories:

Human Population

- Growth of human population.
- Urbanization.
- Increased polarization (affluence and poverty).

- Lifestyle changes and consumptive expectations.
- Modern hunting techniques.
- Immigration/transient populations.

Commercial Exploitation

- Commercialization of the forest.
- Development of infrastructures/transport giving easy access to natural resources.
- Failure of logging and other commercial companies to provide sustenance for employees, causing them to live off local bushmeat.
- Failure of logging and other commercial companies to supervise and prevent their transport from being used to carry bushmeat.

Legislative and Governmental

- Lack of effective national, regional and international legislation and implementation.
- Ineffective enforcement of legislation.
- Corruption.

Cultural

- Changes in cultural and religious practices.
- Breakdown of cultural dietary taboos.
- Loss of traditional respect for nature.

Public Awareness and Education

- Lack of environmental education and public awareness.
- Few alternative sources of protein and income.

Goals

- Reduce pressure on target ecosystems and bushmeat species.
- Change environmental attitude of commercial exploiters of natural resources.
- Reduce commercial market for unsustainably hunted bushmeat species.
- Enhance awareness in target countries of the plight of unsustainably hunted bushmeat species.

Actions

- Encourage end-consumers and consumer country governments to put pressure on product suppliers to reduce the harmful impact on ecosystems.
- Improve forestry management and involve resource-exploiting companies in environmentally sound planning.
- Develop Fair Trade policies between "south and north."
- Establish in-country education programs to promote the sustainable use of bushmeat.
- Increase awareness in consumer nations of the environmental damage caused by the use of natural products from bushmeat areas.
- Enforce existing wildlife protection legislation on targeted urban bushmeat markets.
- Establish community ownership of the bushmeat resource.
- Educate hunters in sustainable hunting practices and promote sustainable harvest of wild populations.
- Develop alternative sources of income such as ecotourism, local craft industries, and farming of marketable species (e.g., butterflies, beetles, fruits).
- Farm selected bushmeat species or alternative sources of protein.
- Encourage intensive management of endemic species.
- Establish research programs to determine the:
  a. Scale of the problem in geographical regions apart from West and Central Africa.
  b. Impact of logging and mineral extraction/mining on local economies.
  c. Reliability of timber accreditation.
  d. Importance of bushmeat to local economies.
  e. Contribution of bushmeat to the local protein intake in different geographical regions.
- Encourage links between:
  a. IUCN initiatives relating to bushmeat, including the Regional Sustainable Use Specialists Group, the IUCN Forest Programme and the IUCN Regional Office for Central Africa.
  b. Bushmeat Crisis Task Force.
  c. EAZA Bushmeat Interest Group.
  d. UK Government's Tropical Forest Forum's subgroup on bushmeat.
  e. National and regional accredited zoological associations and their members.
  f. The Ape Alliance.
- Encourage CBSG participation in the bushmeat workshop under the auspices of the Centre of Applied Biodiversity Science in Ghana, December 1999 and a future CBSG workshop on bushmeat in West or Central Africa in the year 2000. ■

Submitted by John Knowles, Working Group Convenor.

Disease Risk Working Group Report

A major focus of this working group was to review the information developed during a similar session at the 7th World Conference on Breeding Endangered Species held in Cincinnati, OH in May 1999. At that time, a working group was convened to begin building a preliminary agenda and list of invitees for a proposed workshop on the identification, characterization and management of disease risk in conservation programs. This workshop is scheduled to take place in Omaha, Nebraska (USA), 31 March – 1 April 2000, and is sponsored by the Henry Doorly Zoo. The primary goal of this workshop is to develop a protocol whereby diseases known to be of importance to the zoo and wildlife management community can be characterized in terms of their prevalence, infectivity, and pathogenicity so that they can then be parameterized in the context of quantitative risk assessment processes such as population viability analysis (PVA).

The tasks of this working group were:

- To provide additional suggestions for invitees to the workshop, particularly from outside North America;
- To provide additional case studies of disease outbreaks in wild or captive wildlife populations that can be used as "teaching tools" for the workshop participants; and
- To develop additional topics that can serve as the foundation for continued discussions or, perhaps, even additional workshops.

Additional Invitees for Omaha Workshop

The Wildlife Conservation Society (WCS) Field Veterinary Unit is seen as a vital component of a successful workshop. The Unit has devoted considerable energy in establishing baseline norms for a variety of wildlife species across central Africa. In addition, they have considerable experience in working with disease issues in sea birds and sea lions in South America. The Unit Director will be in attendance at the Omaha workshop and it is hoped that other field veterinarians will also attend.

The Zoological Society of London has extensive experience in many local species recovery programs for which disease risk was an important component. A population biologist already invited, but additional veterinary representation may be appropriate.

Omaha workshop should focus on human demographic and epidemiological concerns as related to the risk of transmission of disease between humans and wildlife. Consequently, representation from the U.S. Centers for Disease Control and the International Office for Epizootics would be valuable.

In India, NEHU has a group of people conducting work on wildlife diseases in India, with an emphasis on amphibian issues. The Indian Veterinary Research Institute in Delhi would also contribute substantially to the perspective from the Indian subcontinent.

Swedish biologists at Uppsala University have extensive experience in European wildlife disease issues.

Other recommended participants include representatives from Australia's CSIRO, the IUCN/SSC Reintroduction Specialist Group, and the Center for Conservation Medicine at Tufts University (MA, USA). For a truly global perspective, someone from the Central/South American region with the relevant expertise would be highly valuable.

Possible Additions to the List of Case Studies

- Nearly all of the existing case studies listed in the Cincinnati discussions are viral or bacterial. It might be valuable to include parasite-borne diseases.
- Anthrax in gaur; apparently, two wildlife park populations were recently eradicated in India through an anthrax outbreak.
- VVND in South American pigeons
- Anthrax and rabies in Nigeria
- There may be a number of very useful case studies gleaned from the pages of *Noticias*, the journal of Darwin Station in the Galapagos.
- Trypanosomiasis in tigers in India/South Asia

Other Notes of Interest for the Workshop

Recently publications have been highly critical of zoos acting as disease conduits linking wild and captive populations. These arguments will likely surface at the meeting and should be explored beforehand to provide important background information.

The 1999 IUCN Red List will be published before the workshop. This updated listing can serve a valuable role by providing a context for the magnitude of the species endangerment problem worldwide and the role that diseases play.

It may be wise to broaden the list of introductory speakers to include a truly "keynote address" by a major figure in conservation biology that can set the broader biodiversity context of the disease risk issue.

Discussion of the Broader Perspective

The group recognized the need to develop systems for delivering and exchanging information on wildlife disease risks. While some of these issues were discussed in Cincinnati, this is clearly an open field with many possibilities for successful communication.

Perhaps we need to think about a larger-scale, geographic approach to the disease/risk issue. It may be valuable to construct a map in which the world's "disease hotspots" are identified and marked so that linkages relating the distributions of wildlife populations and their associated diseases can emerge. This approach is similar to Norm Myers' original "biodiversity hotspot" approach and can benefit greatly from the prudent application of GIS. These maps would need to be subdivided in some way (e.g., taxonomy, geographic distribution) to make the information more useful and relevant. Such an approach appears to have considerable flexibility in the way data are tabulated.

This idea leads into the difficulties in defining a "disease hotspot": does one define a "hotspot" based solely on the number of diseases affecting a particular taxonomic group, the types of diseases encountered, or on disease characteristics, such as their infectivity?

This type of analysis appears to be better suited for *in situ* considerations. How do we deal with diseases and their associated risks in the *ex situ* world? While there are tools available for captive population analysis, this issue is complex and requires more thought.

Should we be taking more of an ecosystem approach to this problem? For example, how do different diseases affect a group of taxa in different environments? Can we adequately define the "health" of a given population, species, or ecosystem? Are sufficient resources being routinely directed toward these types of assessments?

Based on these discussions, the group agreed to develop an overall goal statement for the broad field of wildlife disease management:

To monitor species and ecosystem health as a means to evaluate conservation actions.

To achieve this, a step-by-step process should be employed whereby:

1. An awareness is created of the need for species/ecosystem health monitoring;
2. Data on diseases and associated risks are collected;
3. These data are then synthesized and analyzed to obtain useful information;
4. The resulting information is presented to the larger conservation community; and
5. Tools and the protocols under which they are to be used are developed and improved in an iterative process involving the earlier steps.

We view the Omaha workshop to be primarily directed toward steps 1 and 5 above. ■

Submitted by Philip Miller, Working Group Convenor.

Nutrition Database Working Group Report

Introduction

Proper nutritional status is crucial to maintaining and propagating animals in captivity as well as in their natural habitats. Animals can be affected by a number of nutritionally-associated diseases which not only can cause morbidity and mortality of the individual, but also depletion of a fragmented population. Since data for evaluating nutritional status are not easily available, information remains underdeveloped and underutilized. There is a great need for sharing nutritional information collected from both free-ranging and captive populations that can, in turn, be utilized to assess the nutritional status of both individuals and populations, locally and globally. Chemical and physiological information relating animal diets to nutrition need to be collated and structured in a readily accessible manner for assessment of a given species' health and environmental nutritional resources. We propose to develop the infrastructure of an Internet-accessible database of nutritional information to fill some of these current data gaps, providing a global network for contributors as well as end-users, administered through CBSG.

Rationale

Information on the nutrient composition of numerous foodstuffs utilized in managed feeding programs, if available at all, is scattered throughout the literature, yet provides the foundation for evaluating dietary husbandry of species held in captivity. Furthermore, published data on many foods cover edible portions for human consumption, which may have little to no application to managed animal feeding programs. Linked databases of detailed information on the nutrient composition of various foodstuffs and physiological assessment parameters for evaluating nutritional status, contributed to and accessible globally, would begin to fill this knowledge gap. This would allow us to better understand and meet the nutritional needs of species under our care.

Goals

Goals of the Wildlife Nutritional Database are similar to those of any large database structuring project:

1. To gather information from diverse sources;
2. To deliver information to a wide range of users;
3. To maintain the information over time in the face of changing technology.

The short-term goal is to provide an online, easily accessible database of nutritional information on composition of foodstuffs utilized by wildlife. Initially, this will be accomplished by designing a functional framework and infrastructure through CBSG, as a tool to facilitate assessment of the health of animal populations and their nutritional environment. The overall project is envisioned in separate phases, with the immediate and initial phase the development of the Food Composition Database, followed by design, development, and linking with, a Physiological Assessment Database. This relational database structure underlies the tools that will assist animal managers in assessment of nutritional status.

Food Composition Database Objectives

1. To develop a tool for use in recording the nutrient content of foods consumed by free-living wildlife in a natural habitat.
2. To physically locate and initiate an electronic means for retrieving and collating existing information, and provide a framework for addition of new data.
3. To continue with development of data framework; ongoing.

Food Composition Database Structure

Identified food categories for the initial design of this database include:

- Browse/other forages
- Fish/aquatic invertebrates
- Milk
- Fruits and vegetables
- Seeds, nuts and grains
- Terrestrial invertebrates
- Vertebrate prey (excluding fish)
- Water

Within each food category, the following data fields should be incorporated (where applicable) into the initial database structure:

- ***Taxonomy (or Species of Origin):*** Family, Genus, Species, Common name(s), synonym(s), local language(s).
- ***Phenology:*** varies by category, but may include immature, mature, eggs, larvae, pupae, adult, senescent, dormant, deciduous/non-deciduous.
- ***Size*****:** length (standardized nose to base of tail), weight, shape, color characteristics.
- ***Sex***
- ***Body part:*** e.g., whole, muscle only.
- ***Plant part:*** skin, pulp, stalk, stem, shoot, seed (pod), juice, leaves, twig, bark, buds, root, flowers, exudates.
- ***Growth characteristics:*** sun/shade, plant density, habit (shrub/tree), cultivated.
- ***Geographic information:*** locale (GPS coordinates), habitat type, soil type, moisture, annual rainfall, altitude/elevation, aspect, habit (carnivorous/herbivorous/omnivorous).
- ***Source*****:** natural/cultivated (organic/nonorganic).
- ***Date of collection***
- ***List of consumer species***
- ***Nutrient data:*** water, fiber fractions (NDF, ADF, lignin, crude fiber), crude fat, crude protein, bound protein, amino acids, soluble sugars/sugar components, fatty acids, vitamins, carotenoids, minerals, secondary compounds.
- ***Link to databases:*** medicinal (plant), toxological, human food, water quality.
- ***Data reference*** (link with bibliographic software for indexing, etc.)

Food Composition Database Action Plan: Stage 1 (12 months)

1. Identify umbrella organization for Wildlife Nutrition Database (WND) (e.g., CBSG Nutrition Disciplinary Specialist Subgroup); by Jan 2000.
2. Locate physical/administrative organization for WND; requires Project Coordinator.
3. Identify funding sources for WND, develop proposal. Initial proposal to be drafted by Mar 2000.
4. Simultanously, working group members and Wildlife Information Network will develop a prototype with selected EEP/SSP priority species for demonstration/presentation purposes. Expected completion by May 2000, to be demonstrated at CBSG annual meeting in 2000.
5. Expand/raise awareness of working group activities (regional links to academia, field, zoo, NGOs)

Food Composition Database Action Plan Stage 2

1. Once homebase and coordinator are in place, develop mechanisms and criteria for data inputs, review, outputs, ownership, and linkages to relevant organizations/databases.
2. Review practical problems identified by prototype; design and complete actual programming.
3. Disseminate information; encourage use and user feedback.
4. Initiate development of linked Physiological Assessment Database.

Recommendations

Enhance recognition of the scientific discipline of nutrition as a conservation priority .

- Activate CBSG Nutrition Specialist subgroup.
- Convene workshop on development of Wildlife Nutrition Database.
- Integrate nutritional aspects as a component of species conservation programs and link with appropriate groups.

Incorporate existing data for priority species into Wildlife Nutrition Database.

- Integrate data already collected through the CBSG CAMP, PHVA, and other processes whenever possible.
- Future CBSG Taxon Data Sheets should be designed to ensure collection of all existing nutrient data on native foods for automated incorporation into the Wildlife Nutrition Database.
- Request nutrient summary data from SSP/EEP husbandry manuals as inputs to WND. ■

Submitted by Ellen Dierenfeld, Working Group Convenor.

Regional Network Working Group Report

The CBSG Regional Network for Africa Working Group convened after several individuals from four African countries expressed an interest in learning more about CBSG national and regional networks. During the introduction of group members several technical questions came up among members, indicating a genuine need for information exchange among zoo conservation biologists in Africa. Many participants were interested in establishing a grassroots link with CBSG in order to conduct workshops and spread information.

Onnie Byers gave an overview of the CBSG Regional Network history. Sally Walker then described how she entered zoo and wildlife work and the events that led to the development of CBSG, India. She described how CBSG, India works in India with both successes and failures. She reiterated that it is crucial to contact CBSG and describe the method to be employed and the objectives and obtain permission before going too far in the process.

There seems to be a strong potential framework and interest in setting up a network in South Africa, which will be explored. It was suggested that all working group members remain in touch, and that CBSG members from Africa be invited to relevant activities.

During the group meeting the following personal commitments were made:

- Paul Bartels and Yolan Friedmann will investigate the possibility of forming a CBSG South Africa or Southern Africa by discussing this idea with Endangered Wildlife Trust, which ostensibly would be the umbrella organization.
- Paul Ishaya will speak with forest and wildlife officials in his region and communicate information about CBSG and the need for dynamic conservation action in his state and country.
- Lee Stewart will organize a workshop on conservation and zoo education in Zambia. All conservation activers of Zambia would be invited.
- Verity Bowman will contact other wildlife groups in Zimbabwe to see if they are interested and would support an initiative for a regional network.
- Sabine Hilsberg will contact research institutes in Africa and determine their interest in the kind of tools and processes CBSG has developed.
- Sally Walker and Sanjay Molur will stay in touch and share their experience in running a CBSG network and also supply materials for distribution.
- Onnie Byers will provide CBSG literature, a CAMP Manual, the CBSG video and slide show and other printed material as required.

In conclusion, this initiative to investigate the possibility of forming CBSG Regional or National networks for Africa will result in a list of taxa and subject areas which require the kind of attention CBSG and its tools and processes can provide. We can expect a series of workshops – perhaps throughout Africa – in the future. ■

Submitted by Sally Walker, Working Group Convenor.

GRB Working Group Report

In 1991, the *Genome Resource Banking (GRB) Action Plan* set forth the commitment of zoos and institutions to save genetic material. The reproductive focus of GRBs may have created high expectations regarding production of offspring using assisted reproductive techniques. These generally unfulfilled expectations may have resulted in disillusionment in the concept of GRB. However, zoos still support GRB for conducting biological surveys. From the outset, GRB encompassed more than reproductive material and this needs to be communicated by re-education. The GRB working group believes that the term "genome resource banking" has become strongly associated with assisted reproduction at the exclusion of other biological materials. Part of the needed re-education would be a name-change to more effectively address the idea that GRB also includes biological products other than reproductive material.

The GRB Working Group therefore suggests that GRB be changed to Biological Resource Bank (BRB). The other products can have more immediate effects and advantages to small population management, for example, DNA for genetics (e.g., parentage determination, lineage determination) and disease surveys (e.g., distemper, rabies, TB). BRB better represents the full potential of all products making up a resource bank. A specific aspect of the BRB such as the collection of tissue and serum, and the placing of such specimens in a bank, should be the responsibility of all institutions managing small populations of wildlife. Biological products constitute a valuable resource and their waste constitutes a loss of valuable biodiversity.

Techniques and methodology have significantly improved, which will not only lead to the better use of reproductive material, but also the optimum use of biological resources.

Russian Update

Prof. Walter Sachsse gave the group a brief summary of the activities of Dr. Natalia Rott in Puschtschino, Russia. She and her students are working on cryopreservation of semen from large mammals of northern Russia. The need was identified for improved communication, taking into account remote GRB efforts such as those in Russia, as well as the lack of adequate international communication between GRB institutions.

International Movement/CITES

Every country has different requirements for exchange of material; these requirements change frequently, making international exchange difficult. There is a need for an international communication forum to facilitate information exchange, encourage international cooperation and address other issues related to BRBs.

Review of GRB in South Africa

Working group participants noted what appears to be a lack of interest in GRB in South Africa. In 1994 the concept was very much alive and a GRB workshop was conducted. At that workshop a policy statement was prepared which was later adopted by PAAZAB. The apparent decline in interest since that time may be responsible for the reluctance of institutions to share specimens. Potential obstacles to getting buy-in and interest in the GRB concept include: cost, lack of off-spring produced, sold on the wrong promises/ benefit, technical difficulties, and lack of education regarding the value of assisted reproduction. In other words, there was the spoken or unspoken promise that support of GRBs would result in the production of young by assisted reproduction as opposed to other benefits.

The group discussed this situation at length and recognized the level of complexity added to the issue when monetary value became a factor – when samples were being bought and sold rather than shared free of charge for the purposes of research and conservation. There is also the ethical consideration of discarding valuable samples rather than allowing another institution to preserve them (and potentially benefit monetarily) simply because of the lack of a contractual agreement regarding ownership. The need for progress on contract production is critical and the process of drawing up a contract will demand discussion and consensus on several critical issues such as ownership, profitability, and control of resources. The group recommends that a standard Memorandum of Agreement be developed (for use in South Africa but with potential global application) which addresses the issues mentioned above. To further address these issues, three other suggestions were made: 1) prepare a concept statement; 2) conduct a follow-up workshop; and 3) change the name of GRB.

Concept Statement

The group discussed the usefulness of a document for animal owners and managers identifying services which GRB can provide (e.g., fertility evaluations, population analysis), outlining potential economic incentives, and encouraging participation (i.e. allowing collection of specimens from their animals). This document should address the sensitive issues of ownership, resale and acknowledgement in any resulting publications.

Follow-Up Workshop

In 1994 PAAZAB and CBSG held a workshop on GRB for Conservation in Africa. A policy document was drawn up and accepted by the PAAZAB membership. There has been tremendous development in the concept and practice of GRB in the past five years and the issues presented in this document have expanded to include the collection and storage of other biological materials and tissues from wildlife species.

The working group recommends a review workshop featuring: input from range people; a review of the species-based action plan concept; a focus on DNA banking ; discussion of resale issues; establishment of an active GRB working group; and other GRB-related issues.

Name Change

As discussed earlier, the term GRB is closely associated with assisted reproduction, which may have resulted in disillusionment in the concept of GRB. In an effort to change this perception, the working group suggests changing the name to Biological Resource Bank (BRB).

Action Plan System

The species-based Action Plan approach was formulated from a captive animal perspective. The approach for collecting material from animals in the wild needs to be examined. It may be more appropriate to collect samples from wild animals in a prioritized but opportunistic manner.

AZA's GRB Advisory Group Resource Guide

The development and purpose of the resource guide was described and copies were distributed to working group members for review and comment.

ATCC's Remote Repositories

The plan by the American Type Culture Collection to create remote repositories of wildlife material was noted.

San Diego's GRB Conference

A GRB conference hosted by the Zoological Society of San Diego's Center for Reproduction of Endangered Species titled "Genetic Resources for the New Century" will be held 7-12 May 2000. Topics will include: *In situ* conservation; unheralded biodiversity; cloning; biotechnology; genetic modifications; post-genomics era; societal issues: population, indigenous rights; genetic resource collections; and ethics. More information is available at www.sandiegozoo.org/cres/genetic_conference.html.

DNA as an Identification Method

DNA represents the only definitive identification method for any animal, and its future use in this regard needs to be explored. The various practical methods of collecting and storing DNA material both for immediate, as well as delayed extraction, need to be investigated.

Recommendations

1. Create a GRB communication network.
2. Establish guidelines for the practical collection and storage of DNA material for later extraction.
3. Develop a standard MOA between the Wildlife Breeding Resource Center (WBRC) and Southern African zoos and breeding centers, which will deal with topics including material "brokerage", resale and scientific competition.
4. Requested that AZA's GRB Advisory Group host an international e-mail forum to facilitate information and idea exchange on issues pertaining to BRBs.
5. Conduct a two-day workshop in South Africa, in association with CBSG, the EWT and PAAZAB and including people from the region, to review the 1994 workshop document and to take GRB and BRBs forward. ■

Submitted by Onnie Byers, Working Group Convenor.

Human Dimension Working Group Report

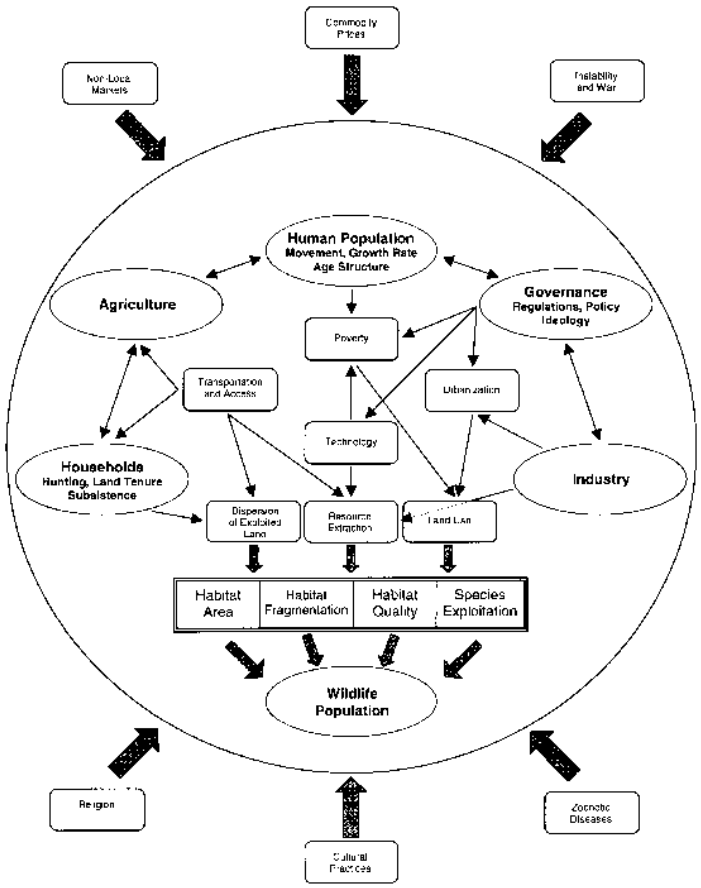
The question was raised and discussed as to how to define 'the human dimension." Two case studies were then described by working group members.

St. Louis Zoo Conservation Project in Nicaragua (C. Asa)

- Discussion with The Nature Conservatory (TNC) regarding parks in peril. Identified Bosawas Reserve. Began as an anthropological project, not biological.
- USAID grant to TNC for anthropologists to study land use and develop maps to establish boundaries of Reserve. There are five tribes that believe that "lands where animals reproduce" are sacred ground; all five sacred areas abut and form a corridor to the country's only park.
- The people have requested evaluation of whether their hunting practices are sustainable. Post-doc begins in January 2000 to collect and analyze data. Then the natives will be given the information so that they can develop a conservation plan, which benefits the natives.
- Beginning to identify species. Later, plan to use land use maps to correlate human activities and their impact on numbers and distribution of species.
- This study will be the baseline study. Hopefully, this will begin a long-term relationship.
- Indigenous people are more receptive to outsiders than to other Nicaraguans of Spanish extraction.
- Outside the reserve there are many potential problems: silver mining; sale of forestry and fishing rights; government intervention; and human population in the aboriginal group.

Central Zoo Authority, India (P. Sinha)

- Eco-development has been in place for three years. Political commitment is crucial for success of conservation projects.
- Restrictions vary by type of protected area:
  1. ***National Reserves***: no extraction.
  2. ***Sanctuaries***: Looking into the rights of the people; may grant the native people some or all of those rights.
  3. ***Reserves and Protected Forest***: Rights are listed in the management plans. With protected forests only restrictions are written so all else is allowed for native peoples.
  4. ***Protected areas (core)***: Buffer concept. No extraction is allowed from core, but extraction for local needs allowed in buffer areas.
- Under eco-development project, in few forest areas of the country, funding is done at the local level within the native village. Committee members manage their own affairs.
- Implementation at local level will be more accepted by the local groups if higher authorities are sensitive to local aspirations.
- *In situ* managers are not doing PHVAs at this time. *Ex situ* mangers took the initiative to begin PHVAs.
- Final power with regard to forests and wildlife lies with the national government (state government representatives have advisory role).
- *In situ* managers have their own plans with a wide variety of stakeholders. All give input. Species and habitats are written into the management plans. All steps must be written into the document.
- In two cases, there are land swaps with the forestry department where the natives will move out from ecologically sensitive areas into forestry periphery land. Natives get equal or more land than they lose.
- The general principle of management of forest and wildlife *in situ* management is an "ecosystems approach," which means more restoration and less active management.



Bubble Diagram – Model for the Human Dimension (H. Vredenburg)

- Define what we are trying to do with these conservation workshops
- Habitat area, fragmentation, quality and species exploitation.
- Get people in different disciplines involved (increase stakeholders), and incorporate qualitative information that is not quantitative.
- The four areas feed through the ports into the vortex of the wildlife population. Then move back from there to assess risks. Need human population information to assess risks.
- Nationalized companies are not as concerned about international opinions, while multi-nationals are concerned and usually have the more eco-friendly technology (more advanced).
- Very difficult to get other people to the table at the workshops. Maybe because the problem is defined from a biological perspective so others might not feel they are relevant.
- Some can be modeled but it is a template for who should be asked to the table.
- Intrinsic value is not working as the driving force for conservation; it must be based on the real value of the animal in the community and make shifts from there.

Recommendations (Bubble Diagram)

1. Eliminate the confusion (define user; define and combine bubbles; quantify the qualitative bubbles where possible).
2. Develop a computer model similar to web documents with hyper-links (including operationalizing the bubbles and their influencing factors).
3. Identify the invested interests of each stakeholder (importance, economic benefit, resource management, ownership). Make a short video that demonstrates how these workshops benefit the stakeholders.
4. Write the operational manual. ■

Submitted by Harrie Vredenburg, Working Group Convenor.

IUCN Draft Policy on the Management of Captive Populations for Conservation

This working group met to review and revise the IUCN Captive Breeding Guidelines established in the late 1980s. The following is a discussion draft developed by the working group participants. Comments are welcome, and should be sent to Dr. Susie Ellis of CBSG at susieellis@compuserve.com.

Preamble

Viable populations of wild species of animals and plants should exist in their natural habitats.

With the accelerating growth of the world's human population and the concomitant loss and fragmentation of habitats, many plant and animal species and their corresponding ecosystems are being greatly reduced and eventually may be lost.

It is likely that no single solution will resolve the magnitude of the crisis ahead of us; many different solutions will be needed to address these problems.

The World Zoo Conservation Strategy clearly defines the conditions that captive propagation facilities and their cooperative networks must satisfy in order to realize their full potential in conservation.

Vision

Our vision is that there will be no further human-induced extinctions of species and that present biodiversity levels will be maintained through all available means.

Goal

Those responsible for captive populations will strive to use all the resources and means at their disposal to maximize their conservation impacts for the world's plant and animal species.

Policy Statement

The basis for responsible captive population management in support of conservation is founded on the following principles, which can be divided into direct and indirect effects on the species itself.

Direct Effects

- The primary objective of captive propagation is for the benefit of the species and its community.
- Captive and wild populations must be managed within an integrated, multi-disciplinary metapopulation management plan developed with range state participation.
- Metapopulations must be distributed adequately to reduce risk of loss through catastrophe.
- Other conservation priorities and resources, including available space for such programs, must influence captive population management for any species.
- Inter-sector communication and information regarding species whose conservation status is precarious must be improved.
- For captive populations to contribute most effectively to species management in the wild, captive propagation must be initiated before that species is critically endangered.
- For those critically endangered species for which husbandry protocols do not exist, it must be recognized that surrogate species can serve important, multiple functions (e.g., development of husbandry protocols, staff training).
- Captive populations must be managed to their maximum advantage, as resources for future conservation initiatives, including (but not limited to) reintroduction and genome resource banking.

- Long-range planning for captive populations must minimize the effect of artificial selection in the interest of returning genes or individuals to the wild.
- Captive populations must be used as a resource for basic and applied research to provide information on biology and to contribute knowledge to assist conservation in the wild.
- Locations of captive propagation programs must optimize benefits to the species, with a balance between in-country and out-of-country activities.

Indirect Effects

- Captive populations should be used to generate funding to support *in situ* conservation.
- Captive populations should be used as a conservation education and training resource to develop public awareness and involvement at in-country and out-of-country sites.
- Where there is captive propagation out-of-country, benefits should return to the country-of-origin.
- Captive propagation of species leads to saving ecosystem components.
- Species in captivity should be used to enhance conservation of their own natural ecosystems and communities.

Unresolved Issues

- Multi-sector communication and information regarding species whose situation is precarious is critical to achieve this goal.
- CBD interpretation and operations
- Politics of national and international legislation need to be considered; urge governments to look at these issues.
- How forceful should wording be? (must, will, should, etc.)
- Inclusion of the term “ambassador species”

Submitted by Susie Ellis, CBSG, and Nate Flesness, ISIS.

Don’t miss the 2000 CBSG Annual Meeting, 20-22 October in Palm Desert, CA, USA!

During recent strategic planning sessions involving the CBSG staff, collaborator and advisor Dr. Frances Westley, and Vice-Chairman Dr. David Wildt, we drafted a statement of vitality for our organization that we think captures the essence of who we are and what we do:

CBSG’s Statement of Vitality

CBSG cares about saving endangered species and habitat. It bases its mission and activities on the development and implementation of scientifically sound processes. CBSG takes a leadership position in the conservation community based on cross-cultural, interdisciplinary and inter-sector partnerships. CBSG champions openness, inclusiveness, morality, ethics and risk-taking. It constantly evolves in response to the needs of all those concerned with conserving the planet's biodiversity. It depends on the warmth, support, acceptance and vitality of its extended community.

PNG Tree Kangaroo CAMP & Matchie's Tree Kangaroo PHVA Workshops

Planning for this PHVA began in late 1996. It was time that a more organized, cooperative and coordinated approach was taken to the development of conservation planning of Papua New Guinea (PNG) wildlife, and this conference provided a great opportunity to begin this process. Tree kangaroos were chosen for first taxon to be examined. There are six species of tree kangaroos in PNG, so it was decided that we would conduct a CAMP. At the same time, because more was known about Matchie's than any other species, we decided to carry out a PHVA on this species in particular.

ARAZPA (who turned out to be critical to the success of the conference), took on the task of finding financing. Major sponsors were Adelaide, Taronga, Melbourne, Columbus, Perth, Roger Williams, San Antonio, and Mill Mountain Zoos and Currumbin Sanctuary. The workshop was co-hosted by The Rainforest Habitat, the PNG National Museum and Art Gallery and the PNG Department of Environment and Conservation, and was held in Lae, PNG's second largest city, in September 1998.

Planning began in earnest, and ideas began flying around the world on e-mail on how to best organize the conference. The invitation list grew, as people in the field began to be identified both in PNG and overseas (this list in itself is a positive result of undertaking such a conference), and thoughts turned to how best to involve local stakeholders. We decided that representation from as many PNG tree kangaroo habitat areas as possible would be sought, and we utilized NGOs working around PNG (on various environmental projects) to identify possible local representatives from their areas. Nearly all of PNG and its wildlife is owned by the people, and any planning and decisions made regarding the future conservation of tree kangaroos must include input and agreement from these stakeholders to be meaningful.

The meeting was facilitated by Onnie Byers and Phil Miller of CBSG. It involved an in-depth look at the species' life history, population history, status and dynamics, and assessed the threats putting the species at risk. Once agreement was reached on the state of current information, these data were used in a computer simulation to assess the risk of extinction under current conditions, the factors making the species vulnerable to extinction, and those factors which if changed or manipulated, could best prevent extinction.

Travel and accommodation logistics for the 47 participants was challenging, especially for the landowners from various remote localities. The NGOs involved proved a great help in this regard.

Melbourne Zoo donated the use of a professional to film the workshop for the future use of other countries embarking on their first CAMP or PHVA, and Perth Zoo provided an education specialist who prove extremely valuable to the workshop.

Participants were divided into four working groups: life history and modeling, socio-economic issues, status and distribution, and government and legislation. At the end of each day reports were presented from each group, to review, discuss and finally accept them. All oral reports were translated into Pidgin and a written draft report, with an executive summary in both English and Pidgin, was produced by the end of the workshop.

The most important outcomes of the workshop were the development of educational tools and an immediate conservation plan for the most severely endangered of the tree kangaroos in PNG, Scott's tree kangaroo.

Education

It is fairly well accepted that one of the best ways to change conceptions and to introduce new environmental ideas into the community is with children. Most children in our area do not make it to higher secondary school, where real environmental learning currently begins, so they do not have this knowledge to help with making decisions about the future of their rainforest resources. Two years ago, with the help of the Wildlife Conservation Society of New York and the New

Zealand Government, we embarked on a project which now involves some 10,000 children being taught environmental education in Grades 4 and 6 of Primary school in Morobe Province. It is proposed that much of this curriculum now be adopted nationally across the country.

At the workshop it was decided to include something on tree kangaroos for these children, so they could contribute to the conservation of animals in their area, (and also involve their older relatives in their home villages). The result was a colorful small booklet, part of which the children keep, and part of which they return to the Rainforest Habitat with information on tree kangaroos in their area. Tony Jupp and the Perth Zoo were responsible for the design and production of the booklet, which is already proving very popular with the children and teachers.

Scott's Tree Kangaroo

Of the ten species and subspecies studied using the IUCN Red List Criteria, two were listed as critically endangered. Both of these, the golden mantled tree kangaroo (a subspecies of Goodfellow's) and Scott's tree kangaroo are now thought to occur in areas less than 100 km^2 (more likely less than 50 km^2), and have estimated populations of fewer than 250 animals (perhaps fewer than 100 in the case of Scott's).

This floored the meeting, as no one had quite expected to discover that two of the tree kangaroos being studied were nearly extinct, especially in a country where most of their natural habitat was still intact! It also proved the worth of the CAMP process, as these revelations may never have come to light until it was too late. Of course whether it is in time or not, is yet to be established.

These findings also gave everyone involved, a new and urgent sense of responsibility. As a result of these findings, an immediate response team was assembled to go to Lumi, in the West Sepik area (Sandaun Province) with the following tasks:

1. To investigate the potential to establish a moratorium on hunting Scott's tree kangaroo (called tenkile in the local language).
2. To confirm and extend the current information on the known tenkile population.
3. To determine the priority needs of the villagers.
4. To identify appropriate community support programs.
5. To outline strategies for the implementation of support programs.
6. To determine the extent of tenkile ownership dispute.
7. To assess the captive animal and take samples.
8. To identify an interim committee with responsibilities, actions and timeliness.
9. To determine the logistics and politics of a captive breeding program, and where best to carry this out.

Funding for the trip came from the Zoological Parks Board of Victoria, Friends of the Zoo Inc. and the Zoological Parks Board of New South Wales. To the original list of tasks, we added another, that being to investigate the possibility of both the golden mantled and Scott's tree kangaroos occurring in the Prince Alexander Range – east of their current known range in the Torrecelli Mountains. All of the original tasks were achieved, with a two-year moratorium on hunting being signed by representatives of 13 villages in the tenkile range area and plans to establish a research and captive breeding center at Lumi station.

In addition, although no tenkile were identified in the Prince Alexander Range, it is the belief of the team that either the golden mantled or another new species or subspecies of Goodfellow's tree kangaroo occurs in a section of up to 100 km of the Prince Alexander Range east of its current known habitat.

In an effort to save these unique animals, funding is now being sought to support further work by the team and to establish the breeding center. ■

Submitted by Peter Clark, The Rainforest Habitat.

CBSG Workshop Process Video

This informative video was filmed at the Tree Kangaroo CAMP and PHVA workshops in Papua New Guinea in September 1998 and illustrates the dynamic, participatory nature of a CBSG workshop. Production of this video was made possible by generous contributions from Melbourne Zoo and SeaWorld, Inc.

Copies of the CBSG Workshop Process Video (VHS or PAL format) are available for US $10 from the CBSG Office.

Red List Criteria Review Workshops

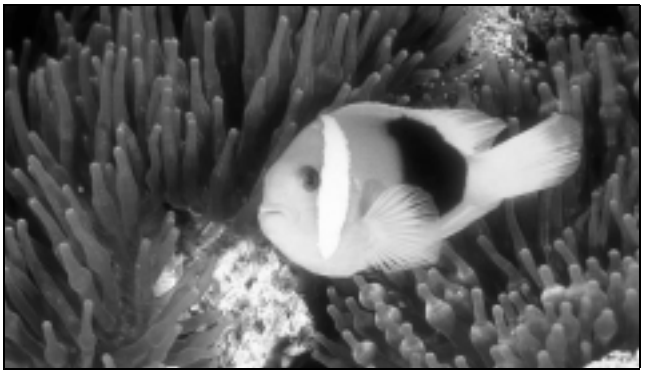
With the 1994 Red List Criteria being increasingly used since its revision, a number of agencies and individuals around the world have used them to determine extinction risks for species. The use of these categories as a tool to determine the status of a species in the wild has had far-reaching effects in terms of country/regional management plans for species, though the IUCN criteria are not meant to influence national/regional/local policies purely by the global status assessment of a species. Since organisms belonging to many taxonomic groups have been assessed using the uniform global criteria, comments and criticism have poured into the IUCN office on the versatility and flaws of the criteria. The basis of the criteria – biological only – put pressure on organizations with commercial harvest interests to adhere to results of species assessment based on the IUCN criteria.

In October 1996 the World Conservation Congress issued a mandate to the SSC to review the 1994 Red List Criteria to be an effective indicator of the extinction of risk across a wide range of taxonomic groups, with special reference to marine organisms (especially fish); managed species; and time periods over which declines are measured.

The SSC initiated the process of review with a scoping workshop in London in March 1998 followed by specific topic workshops: the Regional Guidelines workshop in Montreal (October 1998); the Marine workshop in Tokyo (February 1999), the Range/Area and Uncertainty workshop in Sydney (July 1999), the Criterion A workshop in Cambridge (June 1999) and the Review workshop in Cambridge (July 1999).

A total of 22 members were chosen as representatives from different regions of the world for their expertise in applying the criteria on different taxa. At the Scoping workshop basic issues about the revisions were discussed and all suggestions received were categorized and separated into tasks for working groups. The workshop identified subject areas for which future workshops were to be held. A set of recommendations emerged at the workshop which were discussed in later workshops.

The Regional Guidelines workshop looked at issues related to making the global criteria applicable for a regional assessment. Recommendations were that an endemic taxon or an isolated conspecific population of a taxon within a region can be assessed using the global criteria without alterations, whereas a part of a contiguous population or a non-isolated conspecific



population within a region would have to consider issues such as migration rates, status of the population to be assessed (whether source, sink or neither), threats acting on the assessed population, interactions of the local population with its neighboring populations, and the capability of reducing threats in areas to be recolonized. A checklist of questions to derive this information was constructed so as to modify (upgrade or downgrade) an assessment made of a regional population based on the global assessment.

The Marine workshop was held to tackle the issue of the IUCN criteria as applicable to marine organisms. However, the issues as discussed at the workshop were mostly restricted to marine fishes and their dynamic biology that makes them less susceptible to harvest.

A general complaint was the applicability of the fixed threshold values for Extent of Occurrence and Area of Occupancy to different taxonomic groups. For example, the thresholds in Criterion B are too big for invertebrates and flowering plants but are too small for marine organisms.

The Range/Areas and Uncertainty workshop looked at a very important component of status assessments – uncertainty. There is uncertainty in almost all aspects such as data quality, interpretation of data, interpretation of the categories, group consensus, and confidence limits. It was suggested that the issue of uncertainty be interpreted with proper guidelines.

The Criterion A workshop was designed to look at the A criterion critically with some definite changes envisioned before the actual workshop. The main issue related to low threshold values applicability to managed fish species and other related issues.

The Review workshop, which was the final workshop, revisited the issues discussed in all of the previous workshops. Revisions for the 1994 criteria were discussed and a consensus was achieved at the end of the meeting. The results of this workshop are the revisions that will be published in the August issue of SPECIES magazine as a draft for comments from everybody. The comments, if new or different, will be examined again by the review committee.

Red List Criteria at the National Level

A five-day workshop on applying the IUCN Red List Criteria at the National Level for South and Southeast Asia was organized by the IUCN Regional Office in Sri Lanka from 13-17 September 1999. The Sri Lanka workshop was attended by more than 30 participants from 16 countries. The Asian countries represented at this workshop were Bangladesh, Cambodia, India, Indonesia, Lao PDR, Malaysia, Nepal, Pakistan, Sri Lanka, Thailand and Vietnam.

The objectives of this workshop were to train the national representatives in the use of the IUCN Red List categories at the national level and to test the efficacy of the system of regional guidelines on assessment of species at the national level. ■

Submitted by Sanjay Molur, CBSG, India.

Jordan: An Update

Jordan is known for its great geographical and weather diversity, which has led to great biodiversity throughout the country, covering some major plant and animal species. However, due to several human activities, such as excessive hunting, overgrazing, land misuse and others, many of these species are threatened, some have become extinct and others are suffering from severe declines in their numbers.

The Royal Society for the Conservation of Nature (RSCN) was established in 1966 to conserve, protect and reintroduce endangered species and habitats within the country. Since then, reintroduction programs have been started both for species extinct in the wild and those on the verge of extinction in several reserves managed by RSCN. Beginning with only one program in 1978, there are now six programs in 1999.

Arabian Oryx

Arabian oryx were last seen in the wild between 1920-1930 and were officially extinct in the 1930s. The reintroduction program started in 1978 with only 11 animals in Shaumari Reserve (22 km²). The population reached to 31 in 1983 when the first release from the enclosures to the whole reserve was established. Since then oryx live freely and their numbers reached 200 animals by the end of 1998. RSCN is now in the process of finding suitable release sites in the whole country.

Ostrich

Ostriches were extinct in Jordan in the mid-1960s when the last ostrich was found dead after a flood in south Jordan. RSCN started a reintroduction program for this beautiful bird in 1979 with three birds in Shaumari Reserve. The program continued successfully with two different species: the blue-neck ostrich and the red-neck ostrich. Now RSCN only has the blue-neck ostrich but is in the process of renewing a red-neck ostrich program again. The number of the blue-neck ostriches reached to more than 25 birds by the end of 1998.

Onager

The Syrian wild ass, or onager, used to live in Jordan, but due to human misuse, the species was extinct from the area within this century. RSCN determined that the Persian onager most closely resembles the native species. A reintroduction program was started in 1983 in Shaumari Reserve with two animals (male and female). The program faced several difficulties over the years but started to develop again in the 1990s. Two healthy onagers were born this year, bringing the total number of animals to eight.

Gazelle

Jordan is known to having several gazelle species. Some of them are still living in their natural habitat, but face many dangers, particularly hunting. Because of that, RSCN started a reintroduction program for the Reem gazelle, with five animals at the end of 1998.

Nubian Ibex

Nubian Ibex are still found within the southern and eastern mountains of Jordan, but their numbers are declining due to hunting. Due to the importance of this animal, which represents a feature of Jordan, RSCN started a reintroduction program in 1989. Their numbers rose to more than 50 animals, and their first release was conducted in 1998, where 34 animals were released. There are now 55 ibex, and RSCN is preparing for new releases.

Roe Deer

The roe deer was extinct back in the first of the century due to excessive hunting. RSCN started a reintroduction program for the *Capreolus capreolus* species in 1986 in the Zubia Reserve. The number reached 22 animals by the end of 1998. ■

Submitted by Omar Abu-Eid, The Royal Society for the Conservation of Nature.

Ulie Seal: 20 Years as Chairman of CBSG

Excerpts from speech by Susie Ellis, CBSG Senior Program Officer, at the 1999 CBSG Annual Meeting

This is a milestone year for Ulie Seal. He's become a septuagenarian, and more importantly, he is celebrating his 20th year as Chairman of CBSG.

Some details of Ulie's life are more well-known than others. Though he generally tells people he's from Georgia, Ulie actually hails from West Virginia. When his mother was pregnant with him, the town doctor advised her not to deliver her baby in the town hospital, as it was not clean enough. Instead, he advised her to give birth in a nearby hotel, which may explain why Ulie is completely at home in hotels all over the world.

Like many biologists, Ulie has had a fascination with wild creatures all his life. When he was a child in Atlanta, the escape of a pet snake during one of his mother's garden club tea parties led his house to be blacklisted by the club. While most men bring their wives flowers on their honeymoon, Ulie brought Marialice, who we all miss deeply, a 3-foot copperhead snake three days after they were married.

Ulie originally trained as a psychologist before receiving his Ph.D. in biochemistry. Following a post-doc in endocrinology, he took a position at the VA Hospital in Minneapolis, where he spent the majority of his career conducting research on prostate cancer. During this time he became interested in developing safe techniques for wildlife anesthesia and contraception, conducting research on a variety of species, including white-tailed deer, wolves, and Siberian tigers. His interest in applying science to endangered species conservation continued to grow.

Some highlights of "the middle years:" in 1973, in his spare time, he developed ISIS, which grew into a fully functional entity by itself. In 1979, Sir Peter Scott appointed Ulie Chairman of CBSG. In the early 1980s Ulie and Tom Foose developed the first model for SSP programs, on which most SSP-type programs have been based.

In the mid-1980s, when the black-footed ferret was discovered to have been reduced to 18 animals, Ulie hit his stride as a champion of interdisciplinary collaborations to solve complex conservation problems. This theme has continued to play a key role in CBSG's long-term philosophy. Over the years, social process has been combined with science to address a significant number of complex problems and to turn conservation theory into conservation practice. Ulie believes in empowerment, and embodies the leadership described in the following quotation, which I paraphrase: "And with a great leader, when the work is done, the people will say 'we have done it ourselves.'

When Ulie retired from the VA in 1990, no one could have predicted the direction and rapid evolution that CBSG would undergo, and continues to undergo. You not only think outside the box, you live outside the box.

Ulie, you command the respect of international leaders in conservation, zoo directors, scientists, and wildlife managers throughout the world, as well as your staff. Your enthusiasm, humor, intellect, kindness, generosity, insatiable curiosity and infectious laughter inspire us all. Perhaps the best summation of your contributions were the words spoken when you received the Emory Award in 1993.

> *Renowned scientist:*
> *With unbridled energy and enthusiasm you have followed heart and mind out of the lab and onto the deck of a modern Noah's Ark. Intent on saving the world's fast-vanishing species, you have freed your keen intelligence and happy imagination, developing techniques of captive breeding, taming ferocious interest groups, tending the welfare of wild and captive animals and demonstrating our own potential to care for the world. Few have contributed more to solving the world's problems and encouraging our growth than you.*

Ulie, here's to another 20 years, or however long we are blessed with your invigorating, generous and imaginative presence.

As many of you know, Susan Tressler, who has been on Species Survival Commission staff since1992, sadly left SSC at the end of December. I don't need to tell you what an indispensable member of our team she has been. Of course, we are always frustrated that we do not have enough funding, but the money we are bringing in now is huge compared with what we were achieving seven years ago. Perhaps it will always be the nature of SSC that our visions run ahead of our financial resource base, and this is not always unhealthy.

However, it is Susan, above all others, who we have to thank for our funding growth over the last seven years. She has pushed us to articulate SSC's work in a much more convincing, strategic manner, and this has opened a number of new funding sources for us, especially from governments and foundations. The program has grown enormously over this time, and, when we make some major breakthroughs on SIS in 2000, as I am sure we shall, SSC will truly be moving into a new age. Susan has been tireless in promoting SIS, look for every available opportunity, following up every lead meticulously, taking hard decisions on priorities, etc. I'm sure that she will continue to track SIS developments from her outpost in Peru!

Susan, we shall also miss our day-to-day interactions with you as a friend. But we know that you will be keeping in touch with us, because SSC never really lets anyone go!

I'm sure all of you want to join me in thanking Susan for that she has done for us these last years. And have a great time in South America!

Simon Stuart, Species Survival Commission, World Conservation Union

Job Announcement: Population Biologists (2 positions open)

Two Population Biologists will be hired to work in a Population Management Center, jointly administered by the Lincoln Park Zoo (Chicago, IL, USA) and the Brookfield Zoo (Brookfield, IL). The Population Biologists will work with senior scientific staff of the Population Management Center to assist the conservation breeding programs of the American Zoo and Aquarium Association with demographic and genetic analyses of pedigrees, and with planning of future breedings. For more information, go to http://www2.netcom.com/~rlacy/PMCjobs.html

Courses Offered

The Department of Zoology and Entomology at the University of Pretoria is offering three new Masters courses in 2000: Systematics and Conservation Evaluation; Conservation Ecology and Planning; and African Mammalogy. For more information, contact Prof. Clarke Scholtz, Dept. of Zoology and Entomology, University of Pretoria, Pretoria 0002, South Africa (email: chscholtz@zoology.up.ac.za) or visit http://www.up.ac.za/zoology/top.htm

The Royal Veterinary College and the Institute of Zoology are offering a 12-month MSc course in wild animal health beginning in October 2000. For more information and an application form, contact Dr. M.T. Fox, Royal Veterinary College, Royal College Street, London NW1 0TU (tel: 020 7468 5000; fax: 020 7388 2342; email: mfox@rvc.ac.uk).

New Telephone Numbers for CBSG and ISIS

The CBSG Office and ISIS Office in Minnesota now have new telephone numbers and will soon have a new area code. Please note these new numbers below:

CBSG Office telephone:	01-612-997-9800	(after 1 March 2000, 01-952-997-9800)
ISIS Office telephone:	01-612-997-9500	(after 1 March 2000, 01-952-997-9500)
CBSG/ISIS fax:	01-612-432-2757	(after 1 March 2000, 01-952-432-2757)

CBSG *News*

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

May We Discuss Another Issue?

CBSG News is currently distributed to a network of more than 800 CBSG members and conservation professionals in 170 countries. In order to keep up with increasing expenses for the printing and distribution of *CBSG News*, we are asking for contributions from readers in hard currency countries who feel they can afford to help us defray these costs. If you would like to assist CBSG with these expenses, please take a moment to fill out the coupon below. Suggested contribution is US $35. Thank you for your support.

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☐ Yes! I am enclosing _____ payable to CBSG to help defray costs for publication and distribution of *CBSG News*.

☐ I cannot contribute at this time, but would like to continue receiving *CBSG News*.

☐ I no longer wish to receive *CBSG News*.

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