CBSG News

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

SSC Chairman's Report to CBSG Meeting

The past year has been one of active expansion within the SSC network. The process of reconstituting the Commission is ongoing, and we now have close to 3500 members in 155 countries and over 80 Specialist Groups. On the communications front, *Species* is being produced by the Chicago Zoological Society and is distributed to all SSC members, including all members of CBSG, twice a year. Mena Boulanger, SSC Financial Development Officer, has produced a new brochure for the SSC. The brochure is available to Specialist Groups to accompany grant proposals and other funding requests.

There are a number of major international programs underway of particular interest to the SSC and CBSG. The IUCN, in conjunction with the World Resources Institute and the United Nations Environment Programme, is nearing completion of a Global Biodiversity Strategy and Action Plan. The SSC contributed sections to the strategy relating to conservation of genes and species both *in-situ* and *ex-situ*. The strategy will be presented as an input to the U.N. Conference on Environment and Development next June in Brazil. The SSC Chairman has been participating in discussions with the World Bank relating to the Global Environment Facility (GEF). The GEF will make available close to $250 million in new funding for biodiversity conservation over the next three years.

The SSC has recently provided a grant from the Peter Scott IUCN/SSC Action Plan Fund to the International Council for Bird Preservation (ICBP) to enable them to hire Roland Wirth as a new Specialist Group coordinator. The grant should result in an acceleration of the Action planning process for ICBP Specialist Groups. The SSC is also nearing completion of a Memorandum of Understanding with the Botanic Gardens Conservation Secretariat that will lead to closer ties between BGCS and the SSC Plant Specialist Groups.

In other developments of interest to CBSG members, the newly formed SSC Task Force on Declining Amphibian Populations has established a Coordinator's Office under the guidance of Dr. James Vial at Oregon State University's Center for the Analysis of Environmental Change. Several zoo-based scientists have been actively involved in the early work of the Task Force.

The former SSC African Elephant and Rhino Specialist Group has been split into separate groups for elephants and rhinos. Dr. Martin Brooks of South Africa will chair the Rhino Group and Dr. Holly Dublin of Kenya and Dr. Bihini won wa Musitit of Zaire will chair the Elephant Group. The SSC is seeking funds to hire an executive officer for the African Elephant Specialist Group. The Asian Rhino Specialist Group is hosting a meeting in Bogor, Indonesia the week after the CBSG meeting to discuss conservation strategies for the two species of Indonesian rhinos.

Within the next year, SSC intends to hold a series of workshops investigating priority-setting mechanisms for biodiversity conservation, including one on expanding the Mace/Lande system for categories of threat. The African wild dog workshop and PVA, originally scheduled for earlier this year in Tanzania, will be rescheduled in the near future.

Dr. Simon Stuart, Head of the Species Programme for IUCN, presented an overview of the SSC Action Planning Programme. While no Action Plans have been published since last year's General Assembly, several are nearing completion. The following Action Plans are in final review and most should be at the printer in the next few months: North American plants, bison, lemurs, cracids, swallowtail butterflies, Australasian marsupials and monotremes, South American camelids, seals, crocodiles, procyonids, equids, and fruit bats.

Dr. Mariano Gimenex Dixon from Argentina have been hired as the new SSC Programme Officer and has begun a review of the process of implementation of past SSC Action Plans.

George B. Rabb, Chairman SSC

Captive Breeding Specialist Group Conservation Advisory Council

Conservators

- Chicago Zoological Society
- Cleveland Zoo
- Columbus Zoological Gardens
- Dallas Zoological Society
- Denver Zoological Foundation
- Fossil Rim Wildlife Center
- Friends of Zoo Atlanta
- Greater Los Angeles Zoo Association
- International Union of Directors of Zoological Gardens
- Jacksonville Zoological Park
- Lubee Foundation
- Minnesota Zoological Garden
- New York Zoological Society
- Omaha's Henry Doorly Zoo
- Toronto Zoo
- White Oak Plantation
- Zoological Society of Cincinnati
- Zoological Society of San Diego

Guardians

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

Protectors

- Aalborg Zoo
- Asmode, Jean Francois
- Audubon Zoo
- Banham Zoo
- Kevin Bell
- Caldwell Zoo
- Calgary Zoological Society
- Cologne Zoological Garden
- Copenhagen Zoo
- Cotswold Wildlife Park
- Dutch Federation of Zoological Gardens
- El Paso Zoo
- Emporia Zoo
- Federation of Great Britain and Ireland Zoos
- Givskud Zoo
- Granby Zoological Society
- Howlett & Port Lympne Foundation
- Japanese Association of Zoological Parks and Aquariums
- Jersey Wildlife Preservation Trust
- The Living Desert
- Marwell Zoological Park
- National Zoological Park, Smithsonian Institution
- NOAHS Center
- North of England Zoo
- Odense Zoo
- Oklahoma City Zoo
- Orana Park Wildlife Trust
- Paignton Zoo
- Paradise Park
- Penscynor Wildlife Park
- Philadelphia Zoological Society
- Riverbanks Zoological Park
- Royal Zoological Society of South Australia
- Royal Zoological Society of Antwerp
- Royal Zoological Society of Scotland
- San Francisco Zoological Gardens
- Thrigby Hall Wildlife Gardens
- Toledo Zoo
- Twycross Zoo
- Union of German Zoo Directors
- Urban Council Hong Kong
- Washington Park Zoo
- Wildlife Preservation Trust International
- Wilhema Zoo
- Woodland Park Zoological Society
- World Parrot Trust
- Yong-in-Farmland
- Zoological Society of London
- Zoological Society of Wales

CBSG News

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

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CBSG Mission Statement

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

The goals of the CBSG are:

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

Conservation Assessment, Management Plans, and Global Captive Action Plans

Preamble

Reduction and fragmentation of wildlife populations and habitats are occurring at a rapid and accelerating rate. An increasing number of taxa are becoming small (i.e. a few tens to a few hundreds, or at best a few thousands) and isolated populations are in danger of extinction.

In addition to the deterministic threats of habitat degradation and unsustainable exploitation, stochastic problems also can imperil the survival of small populations. Stochastic events are random and therefore difficult to predict. However, careful genetic and demographic management of small populations can moderate many of these stochastic problems. The problems of small populations apply to species in both the wild and in captivity. Much of the methodology for managing small populations being developed by the captive community may be useful for management of small populations in the wild.

Stochastic problems can be environmental, demographic, or genetic in nature. Environmentally, small populations can be devastated by catastrophes or decimated by less drastic fluctuations in environmental conditions that can impair survival and fertility of individuals. Catastrophes (e.g., droughts, floods, epidemics) are increasingly recognized as severe threats to small populations. Even in the absence of deleterious fluctuations in the environment, small populations may develop intrinsic demographic problems (e.g., biased sex ratios, unstable age distributions, or random failures in survival and fertility) that can fatally disrupt propagation and persistence. Small populations also can rapidly lose heritable genetic diversity that is necessary for fitness under existing environmental conditions and adaptation to changed environments in the future. The smaller the population and the more limited its distribution (i.e. the more fragmented it is), the greater these stochastic risks will be.

Conservation strategies and action plans for threatened taxa must be based on viable populations, i.e. those sufficiently large and well distributed to survive stochastic risks as well as deterministic threats. Viable conservation strategies and action plans also frequently will require management in addition to protection for small populations. Viable population strategies may often require that the taxa be managed as metapopulations, i.e. systems of disjunct subpopulations that are interactively managed with regulated interchanges among them and interventions within them to enhance survival of the taxon.

Development of viable metapopulation strategies can be greatly facilitated by population and habitat viability assessments (PHVA's; Seal et al., 1990). The PHVA process uses computer models to simulate the deterministic and stochastic processes that imperil small populations and to explore what effects various management options produce. The PHVA process is in an early and experimental stage. However, experience so far has indicated that workshops are very effective in applying the PHVA process to development of conservation management plans to taxa whose populations have declined to levels where they are considered under threat of extinction (Clark et al., 1990). Thus, PHVA Workshops are a powerful tool in developing viable conservation strategies and action plans.

PHVA Workshops assemble field biologists, captive professionals, and wildlife managers who have experience with the taxon, as well as the management responsibility and authority for. PHVA Workshops almost always are conducted in the country, and optimally the locality, of origin of the taxon under consideration. Population and conservation biologists with expertise in use of the computer models also participate to assist the taxon managers in performing the analyses. It is ultimately these managers who actually formulate and then implement the conservation management and action plans.

Viable metapopulations often will probably need to include captive components (Foose et al., 1987). In general, captive populations and programs can serve three roles in such holistic conservation strategies:

1) Living ambassadors that can educate the public at all levels and can generate funds for *in situ* conservation,

2) Scientific resources that can provide information and technologies beneficial to protection and management of populations in the wild, and

3) Genetic and demographic reservoirs that can be used to reinforce survival of taxa in the wild either by revitalizing populations that are languishing in natural habitats or by reestablishing populations that have become extinct.

The third of these roles may often be a benefit for the longer term as return to the wild may not be a prospect for the immediate future. However, it is proposed that captive and wild populations should and can be intensively and interactively managed with interchanges of animals occurring as needed and as feasible. Captive populations are support, not a substitute, for wild populations. There may be many problems with such interchanges including epidemiologic risks, logistic difficulties, and financial limitations. Based on limited but growing experience, these can be resolved with effort. The bottom line is that strategies and priorities should try to maximize options and minimize regrets. Captive propagation can contribute significantly to this goal. The IUCN Policy Statement on Captive Breeding (IUCN, 1987) recommends in general that captive propagation programmes be a component of conservation strategies for taxa whose wild population is below 1000 individuals.

As natural habitats decline, a large and growing number of

taxa will need assistance from more intensive management actions. However, resources (funds, staff, space) are limited. Strategic priorities must be developed for program development and resource allocation. Developing these priorities is the purpose of Global and Regional Assessment and Action Plans. Applying these priorities, Regional and Global Captive Propagation Programs can be developed to assist conservation of threatened taxa.

Action Plans: Captive and Wild, Global and Regional

Global Action Plans attempt to provide a strategic overview and framework for effective and efficient application and allocation of resources to conservation of the broad group of taxa of concern. A preliminary chart of evolving relationships among various levels and kinds of action plans, PHVA's, and captive and wild programs was provided in CBSG News, Vol. 2, No. 3. Particularly noteworthy is the parallelism between animal-by-animal recommendations in zoos and sanctuary-by-sanctuary recommendations in wild.

Within the Species Survival Commission (SSC), the primary goal of the Captive Breeding Specialist Group is to contribute to development of holistic (i.e. integrating *in situ* and *ex situ*) and viable conservation strategies and action plans by the taxa-based Specialist Groups of the Species Survival Commission. Toward this goal, the IUCN SSC Captive Breeding Specialist Group (CBSG) is collaborating on Conservation Assessment and Management Plans (CAMPs) and is developing Global Captive Action Plans (CAP).

Conservation Assessment and Management Plans are needed to provide strategic guidance for application of the more intensive management techniques that are increasingly required for survival and recovery of threatened taxa. This intensive management to an ever expanding extent includes, but is not limited to, captive breeding. CAMP's are conducted as collaborative ventures of the taxa-based Specialist Group and the CBSG. Indeed, CAMP's exemplify the growing degree of collaboration between the many taxa-based Specialist Groups within the SSC and the Captive Breeding Specialist Group (CBSG).

The CAMP process reviews the wild and captive status of all taxa in the taxonomic group under consideration. For this purpose, the process utilizes information from SSC Action Plans that may already have been formulated by the taxa-based Specialist Groups. Where such Action Plans do not yet exist, the CAMP process produces the necessary assessment of status and prospects to permit formulation of Global Action Plans for both *in situ* and *ex situ* efforts.

Based on these assessments, the CAMP provides a set of recommendations designating which taxa need various kinds of intensive management attention. Kinds of attention include:

1) Population and Habitat Viability Assessment and Conservation Management Plan (PHVA/CMP) Workshops.

2) Intensive (captive-type) protection and management in the wild.

3) *In situ* and *ex situ* research where the captive community can reasonably assist, e.g., taxonomic clarification, some survey support.

4) Captive propagation programs that sooner or later could be linked to interactions with wild populations.

Obviously, an important product of the CAMP process is a Global Captive Action Plan which attempts to provide a strategic overview and framework for effective and efficient application and allocation of captive resources to conservation of the broad group of taxa of concern, i.e. an order, family, etc. CAP's provide strategic guidance for captive programs at both the Global and Regional level in terms of captive breeding and also possible other support (technical, financial) for *in situ* conservation. More specifically:

1) CAP's recommend what taxa are most in need of captive propagation and hence

- which taxa in captivity should remain there,
- which taxa not yet in captivity should be established there, and
- which taxa currently in captivity should no longer be maintained there.

2) For the taxa recommended for captivity, the CAP suggests an appropriate level of captive program required in terms of demographic and genetic goals and hence size of target population to be developed.

3) Ultimately, the CAP will also recommend how responsibilities for captive programs might best be distributed among organized regions of the global captive community.

4) While captive breeding programs are emphasized in the CAP's, the Plans also attempt

- to identify where and how the captive community can assist with transfer of intensive management information and technology
- to develop priorities for the limited financial support the captive community can provide for *in situ* conservation (e.g., adopt-a-sanctuary programs).

CAMP and CAP workshops have already been conducted for parrots, Asian hornbills, primates, felids, cervids, antelopes, and waterfowl. Others that will occur during the next year include penguins, cranes, Australian marsupials, canids, herps as well as a neotropical regional follow-up for primates.

Considering the recommendations of the CBSG Global Captive Action Plan within a regional context, the Taxon Advisory Groups (TAG) in the various regions will formulate and implement their own Strategic Regional Collection Plans. In reality, the Global and the Regional Plans will be interactively and iteratively developed. The TAGs in various organized regions of the zoo world (ASMP, EEP, SSP, SSPJ) are intimately and interactively involved in the development of the Global Captive Action Plans. As a matter of policy, Regional TAG chairs serve on the CBSG Action Plan Working Groups. Further, these Global Captive Action Plan Working Groups also facilitate interaction and coordination among Regional TAGs as they develop their Regional Collection Plans in an attempt to optimize use of captive space and resources for conservation on an

international basis. The Regional TAG's will most accurately assess captive space in their regions using surveys and censuses to supplement studbook databases, ISIS records, national or regional inventories. It is through the Regional Collection Plans and the breeding programs developed thereunder that the recommendations of the Global Captive Action Plans will be realized.

CAMP and CAP Process

The CAMP and CAP process assemble expertise on captive and wild management of the taxa under review. It provides for a rational means of assessing priorities for intensive management including captive breeding within the context of the broader conservation needs of threatened taxa. The basic action plan process commences with compilation into a briefing book of as much background information as possible on the status of taxa in the wild and in captivity. To reiterate, CBSG is utilizing information from Action Plans that may already have been formulated by taxonomic Specialist Groups of the SSC. Where such taxonomic Action Plans do not yet exist, CBSG is attempting to collaborate with the Specialist Groups to produce the necessary assessment of status and prospects to permit formulation of Global Action Plans for both *in situ* and *ex situ* efforts.

In either case, the CBSG process normally entails consideration of this data in a very intensive and interactive workshop involving representatives of both the captive and field communities. The workshop develops the assessments of risks and formulates recommendations for action. These recommendations are then reviewed by a larger group of captive and wild experts. The result is a Global Captive Action Plan. It is, however, re-emphasized that these Global Action Plans are "living" documents that will be continually reassessed and revised based upon new information and shifting needs.

During the session, all recognized taxa within the broad taxonomic group are evaluated on a taxon-by-taxon basis in terms of their status and prospects in the wild to assign priorities for intensive management attention involving the captive community.

In assigning priorities, there is also an attempt to consider the taxonomic distinctiveness of each taxon. Concerning taxonomy, the most conservative approach in terms of risk assessment and management recommendations is initially to recognize the maximal distinction among possible "subspecies" until taxonomic relationships are better elucidated. Splitting rather than lumping maximizes preservation of options. Taxa can always be merged ("lumped") later if further information invalidates the distinctions or if biological or logistic realities of sustaining viable populations precludes maintaining taxa as separate units for conservation.

Participants in the Workshop are encouraged to be as quantitative for two major reasons: 1) action plans (captive and wild) ultimately must establish numerical objectives for population sizes and distribution if they are to be viable. and 2) numbers provide for more objectivity, less ambiguity, more comparability, better communication, and hence cooperation.

Mace-Lande Categories and Criteria

The CAMP process is using the recent proposals by Mace and Lande (1991) for redefinition of the IUCN Red Data Categories of Threat as a major consideration in assessing threat in the wild These proposals are still under active development. The scheme attempts to assess threat in terms of likelihood of extinction within a specified period of time. Criteria are proposed to estimate the risk of extinction of taxa based on information about size, distribution, trend of their population as well as conditions of their habitat. Their purpose is to provide a system that is more objective and scientific than previous schemes have been.

Critical: 50% probability of extinction within five years or two generations, whichever is longer.

Endangered: 20% probability of extinction within 20 years or 10 generations, whichever is longer.

Vulnerable: 10% probability of extinction within 100 years.

Definition of these categories and assessment of threat is based on population viability theory. Mace/Lande acknowledge that in most cases there will be insufficient data and imperfect models on which to base formal probabilistic analysis. For broader and cruder assessments they propose "more qualitative" but in large part still quantitative criteria for assessing threat in terms of population sizes (total and effective), fragmentation, trends, and stochasticity for each category as summarized in Table 1.

During the Workshop, there is an especial attempt to estimate the total population of each taxon. It is often very difficult, even agonizing, to be numerate because so little quantitative data on population sizes and distribution is available. However, it is frequently possible to estimate order-of-magnitude and/or to assess if the total population is greater or less than the numerical thresholds for the Mace/Lande categories of threat.

In assessing threat according to the Mace/Lande system, Workshop participants use information on the status and interaction of other population and habitat characteristics in addition to the estimates of total number. Information about population fragmentation and trends as well as habitat changes and environmental stochasticity are also considered. For example, total numbers alone might indicate that a taxon be assigned to the Vulnerable category. However, the taxon may be assigned to the Endangered category based on knowledge that the population is severely fragmented, is declining rapidly, or that its habitat is under serious threat so that the probability of and time to extinction place it at higher risk.

As a result of the Workshop process, each taxon is assigned to one of four categories: Critical, Endangered, Vulnerable, Not of Concern (Safe).

Recommendations for action

For taxa placed in a category of concern (Critical, Endangered, Vulnerable), recommendations are formulated for the

kinds of intensive action that would be beneficial: 1) captive propagation programs, 2) population and habitat assessment/ conservation management plan (PHVA/CMP) workshops, 3) more intensive *in situ* management, or 4) research in which the captive community might reasonably assist.

Where captive programs are indicated, there is an attempt to propose the level of captive programs required, reflecting status and prospects in the wild as well as taxonomic distinctiveness. The level of captive program is defined by its genetic and demographic objectives which translate into a target population size that will be required to achieve these goals. There will be multiple genetic and demographic objectives depending on the status and prospects of the taxon in the wild and hence different captive population targets: some taxa need large populations for a long time; others need small incipient nuclei or reduced gene pools that can be expanded later if needed. Computer models and software exist (Ballou, 1991) to establish rough targets now.

It is also proposed that captive populations can be treated as an integral part of the metapopulations being managed by conservation strategies and action plans. Consequently, it is further proposed that animals be interchanged as needed between captive and wild populations. Such a proposed system is the premise on which the proposals for captive nuclei are predicated. Basically, these nuclei would be small populations in captivity that would need to be subsidized genetically, and perhaps demographically, from the wild while natural popula-

Table 1. Mace/Lande Categories and Criteria of Threat

POPULATION TRAIT	CRITICAL	ENDANGERED	VULNERABLE
Probability of Extinction	50% within 5 years or 2 generations, whichever is longer	20% within 20 years or 10 generations whichever is longer	10% within 100 years
	Or	**Or**	**Or**
	Any 2 of following criteria:	Any 2 of following criteria or any 1 CRITICAL criterion:	Any 2 of following criteria or any 1 ENDANGERED criterion
Effective Population N_e	N_e 50	N_e<500	N_e<2,000
Total Population N	N<250	N<2,500	N<10,000
Subpopulations	≤2 with N_e>25, N>125 with immigration < 1/gen.	≤5 with N_e>100, N>500 or ≤2 with N_e>250, >1,250 with immigration < 1/gen.	≤5 with N_e> 500, N>2,500 or ≤2 with N >1,000, N>5,000 with immigration <1/gen.
Population Decline	>20%/yr. for last 2 yrs or >50% in last generation	>5%/yr. for last 5 years or >10%/gen. for last 2 gens.	>1%/yr. for last 10 years
Catastrophe: Rate & Effect	>50% decline per 5-10/yrs or 2-4 gens.; subpops. highly correlated	>20% decline/5-10 yr, 2-4 gen > 50% decline/10-20 yrs, 5-10 gen. with subpops. correlated.	> 10% decline/5-10 yrs, > 20% decline/10-20 yrs, or > 50% decline/50yrs. with subpops. correlated.
Or Habitat Change	resulting in above pop. effects	resulting in above pop. effects	resulting in above pop. effects
Or Commercial Exploitation or Interaction/Introduced Taxa	resulting in above pop. effects	resulting in above pop. effects	resulting in above pop. effects

tions are still large enough to fulfill this function without significant detriment ("Not of Concern", "Vulnerable"). This system would normally require the addition of one or two wild-caught individuals per generation to the captive nucleus. If and when the wild populations declined into a greater state of threat (i.e. "Endangered"), this subsidization would cease and the nucleus could be expanded into a full programme that ultimately would reinforce (subsidize) the wild population.

The approximate scheme that has evolved for Global Captive Action Plans so far is:

Captive Recommendation	Level of Captive Program
90%/100 Yrs I	Population sufficient to preserve 90% of the average heterozygosity of the wild gene pool for 100 years developed as soon as possible(1-5 years).
90%/100 Yrs II	Population sufficient to preserve 90% of the average heterozygosity of the wild gene pool for 100 years developed but developed more gradually(5-10 years).
Nucleus I	A captive nucleus (50-100 individuals) to always represent 98% of the wild gene pool. This type of program will require periodic, but in most cases modest immigration/importation of individuals from the wild population to maintain this high level of genetic diversity in such a limited captive population. Reproductive technology will facilitate this strategy.
Nucleus II	A well managed captive nucleus (25-100) for taxa not of conservation concern, but present in captivity or otherwise of interest.
Elimination	Taxa are not of conservation concern and are not otherwise of interest. The population should be managed to extinction.

The program goals for Critical and Endangered taxa are different from what has been recommended as the general guideline for captive programmes in the past (Soule et al., 1986; Foose et al., 1986), i.e. 90% of genetic diversity for 200 years. A shorter time period is proposed for two reasons: 1) it buys time for more taxa that might be excluded from captive programmes if a longer time period (e.g. 200 years) is adopted, 2) it maintains more incentive to secure or restore viable populations *in situ*.

Whatever level of program is appropriate, it is strongly recommended that any and all taxa that are maintained in captivity should be managed as populations. Therefore there should be studbooks, coordinators, masterplans, taxon advisory groups or other management provisions for these taxa. Moreover, animal spaces as well as the animals themselves should be managed.

There should also be a very preliminary review of all taxa currently in captivity on a taxon-by-taxon basis to determine if the population should be expanded, reduced, or stabilized.

Finally, it should be re-emphasized that neither the CAMP/CAP or PHVA Workshops should be considered single events. Instead, they are part of a continuing and evolving process of developing conservation and recovery plans for the taxa involved. In nearly all cases, follow-up workshops will be required to consider particular issues in greater depth or on a regional basis. Moreover, some form of follow-up will always be necessary to monitor the implementation and effectiveness of the recommendation resulting from the workshop. In many cases a range of PHVA workshops will result from the CAMP/CAP Workshops.

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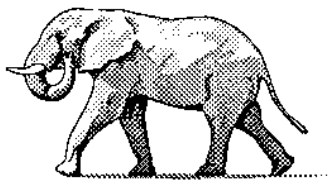
This report was submitted by Thomas Foose, CBSG Executive Officer



Global Primate Captive Action Plan

A Discussion Edition of a Global Captive Action Plan for Primates was presented at the CBSG Annual Meeting in Singapore. The Primate Plan is one of several global plans being developed as an experimental prototype for others that are intended for all vertebrate and selected invertebrate groups. As such, this Plan is a first effort of an action plan process that will be dynamic and evolving.

A CBSG Global Captive Action Plan attempts to provide a strategic overview and framework for effective and efficient application and allocation of captive resources to conservation of the broad group of taxa of concern.

The CBSG Global Captive Action Plan process reviews the wild and captive status of all taxa. Based on these assessments, a Global Captive Action Plan provides a set of recommendations about:

1) What taxa are in need of intensive attention involving the captive community:

A) Population and Habitat Viability Assessment and Conservation Management Plan (PHVA/CMP) Workshops.

B) Intensive (captive-type) protection and management in the wild.

a. Identifying where and how the captive community can assist with transfer of intensive management information and technology (i.e., recognizing natural sanctuaries as megazoos.).

b. Developing priorities for the limited financial support the captive community can provide for *in situ* conservation (e.g., adopt-a-sanctuary programmes).

C) *In situ* and *ex situ* research where the captive community can reasonably assist (e.g., taxonomic clarification, some survey support).

D) Captive propagation programmes that sooner or later could be linked to interactions with wild populations.

2) How taxa already in captivity are optimally managed relative to conservation needs of the broad group of taxa under consideration; should these captive populations be increased, decreased, or stabilized albeit with reorganization.

3) Ultimately, how responsibilities for captive programmes might best be distributed among organized regions of the global captive community.

A more detailed discussion of Global Captive Action Plans appeared in Vol 2., No. 3 of CBSG News..

The Discussion Edition of the Primate Plan was formulated at a Workshop conducted in Minnesota in March 1991 and attended by selected members of CBSG and the Primate Specialist Group. The Discussion Edition is currently being reviewed by the entire Primate Specialist Group. Further refinement of the Plan also occurred at working sessions of the CBSG Primate Action Plan Group in Singapore.

Major points in the Plan follow. Currently, 237 species and 509 distinct "taxa" (subspecies or species if no subspecies are contained therein) of primates are recognized:

Africa	67 species	156 taxa
Madagascar	30 species	49 taxa
Asia	63 species	132 taxa
America	77 species	172 taxa

Approximately 16,000 living primate specimens are currently registered with ISIS. It is estimated that these 16,000 primate spaces represent about 50% of the captive habitat available for primates worldwide. It has been calculated that 32,000 primate spaces would permit a captive nucleus of about 135 individuals for each species and at least 50 individuals for all 509 taxa.

One hundred thirty-seven of the 237 species (58%) and 222 of the 509 taxa (44%) are assigned to one of four categories of threat, based in large part on the recent Mace-Lande criteria:

Critical	62 taxa
Endangered	66 taxa
Vulnerable	77 taxa
High Anxiety	17 taxa

A total of 228 taxa are recommended for one of four levels of captive programmes which are explained on page 8:

90%/100 Years I	77 taxa
90%/100 Years II	40 taxa
Nucleus I	41 taxa
Nucleus II	70 taxa

In terms of the geographic distribution of primates, the recommendations for captive programmes are:

Africa	50 taxa
Madagascar	38 taxa
Asia	62 taxa
America	78 taxa

All 59 recognized genera and 162 of the 237 recognized species of primates are represented in the recommendations for captive program; 75 species are not represented.

A total of 137 taxa are recommended for population and habitat viability assessments.

This reposrt was submitted by Miranda Stevenson, Anne Baker, and Tom Foose.

Report of the Primate Captive Action Plan Working Group

The Global Captive Action Plan discussion reports were distributed to all present and the background and evolution explained. This report (with a supplement giving taxon-by-taxon population data for comment) was sent out to all members of the SSC Primate Specialist Group (PSG). All people on the original Working Group Mailing list were sent a copy of the first part for the evolution of previous versions of the report.

The layout and heading titles of Appendices I and II were explained as was the taxonomy and nomenclature used. The principle had been to split rather than lump, resulting in 509 taxa.

David Woodruff provided provisional results from the work being carried out in his laboratory on genotyping DNA sequence variation from chimpanzee hair samples. So far, this has indicated a significant difference in *Pan troglodytes verus* from *P.t.troglodytes*. It is hoped eventually to be able to determine the specific and subspecific status of the *Pan troglodytes* taxa and to identify hybrids. Work is being extended to cover gibbons and it is hoped that within a year many of the current taxonomic problems especially with *H.lar* will have been resolved. Provisional results suggest that some of the present subspecific forms of *lar* will be merged and that the present *H. concolor* will form at least two separate species. Work like this would seem to be useful and required for many species with similar taxonomic forms. Woodruff emphasized that this non-invasive technique using hair did not work for all species of primates. The technique will cost less in the future; the present cost of $200-$400 per hair will soon be $40-$50 per hair.

Eudey pointed out that both her Asian and Oates' African Action Plans were now nearing the end of their intended duration and in need of revision. These revisions would obviously encompass some taxonomic changes, thus reinforcing the policy of splitting rather than lumping. All present were asked to comment on the plan when they had read it.

Of the 228 primate taxa recommended for captive programs, only 158 are currently in captivity. Thus, about 70 taxa could have captive programs only if animals were brought in from the wild. Also, not all existing taxa have sufficient animals for viable programs. Animals would only be brought in from the wild after consultation with relevant field workers and PSG and with full cooperation of the government of the country of origin.

Comments on the Plan

A statement should be made that the priority in all primate conservation programs is preservation in and with its natural habitat. Captive programs are a tool to preserve populations of certain species. It was suggested that since the purpose of the plan is to develop priorities for captive breeding effort it would be helpful to highlight those species for which no captive breeding effort is recommended. A suggestion was made that a commitment must be made to maintain some groups of non-breeding animals as part of program development.

For some species that are recommended but very few specimens exist in a region, it should be advised that those animals be transferred to the region which is best equipped to develop a successful program.

How to Put the Plan into Action

Obviously, there would be some modifications made to the plan, but there was agreement on the majority of species designated for captivity. There were three aspects to consider.

1) The plans could only be put into action through the instigation of regional coordinators.

2) While close coordination within regional programmes was required, it was essential that these be ultimately managed on a global basis. Thus, a good communications network must be established.

3) As the implementation of captive programmes is dependent on the amount of space available, it is essential to have a reasonable estimate of cage space and quality. To date, crude estimates of space had been obtained by multiplying the ISIS population by two. It was felt that space surveys would be an advantage. Such surveys have been carried out in U.K. and in the U.S. Quality as well as quantity of available space must be considered.

Action

The current Draft Action Plan should be distributed to all known primate species coordinators and regional co-ordination bodies. Comments and feedback on the plan as well as on its usefulness in establishing priorities for breeding programmes within that region, should be requested.

Regional coordinators should evaluate the type and quality of primate captive habitat space available in the region. Each region should be encouraged to develop a structure to coordinate the management of primate taxa within that region.

A global communication network should be formed which would result in good exchange of information regarding regional efforts in primate breeding programs.

This report was submitted by Miranda Stevenson, Chair, CBSG Primate Global Action Plan Group.

Global Waterfowl Captive Action Plan

Meetings for the Global Waterfowl Captive Action Plan (CAP) were held in late August at the Wildfowl and Wetlands Trust, Slimbridge, United Kingdom. The preliminary summary in the CBSG Briefing Book was compiled by Dr. Sue Ellis-Joseph, Nigel Hewston, and Dr. Andrew Green. In contrast to the Asian Hornbill CAP, the Waterfowl CAP was a smaller group. In addition to the Waterfowl CAP, preliminary Population Viability Assessments (PVAs) were conducted for the Nene goose, the Laysan teal, the Hawaiian duck, and the Hawaiian crow.

For the CAP, taxa were reviewed on a taxon by taxon basis to assign Mace-Lande categories of threat and to recommend captive programs and other intensive action. Recommendations in the plan are based only on conservation criteria; political and other constraints will be the responsibility of regional plans.

The Global Waterfowl CAP recognizes 154 species and 236 distinct taxa. Approximately 12,500 waterfowl are registered with ISIS. Crude extrapolations based on the number of zoos participating in ISIS suggest that the global captive capacity for waterfowl is roughly twice the number registered with ISIS, or approximately 25,000 waterfowl spaces worldwide.

This number of spaces would permit a captive nucleus of about 160 individuals for each species or at least 100 individuals for all 236 taxa. In essence, if properly managed, there is room in captivity for all taxa for which there is a need or a desire to maintain. For some waterfowl, however, larger populations will occupy the space that might otherwise be used for several nuclei. A space survey is also needed, with special attention to the quality of space.

Seventy-four of the 154 species (48%) and 87 of the 236 taxa (36%) are assigned to Mace-Lande categories of threat. Ten taxa are listed as critical, 31 taxa are listed as endangered, and 46 taxa are listed as vulnerable. Specific taxa are listed in the CBSG Briefing book for each category. For Critical taxa, five of the ten are recommended for immediate survey work to determine if they are still extant. All Critical species are recommended for PVA's, wild management, and survey work. Only one Critical species, the white-winged wood duck, is currently present in captivity. A PVA for the white-winged wood duck is planned for early 1992. In the United States, a studbook petition has been submitted to AAZPA. PVA's were also recommended for all Endangered taxa. In total, PVA's were recommended for 102 of the 236 taxa (43%).

Of the 236 taxa, 158 were recommended for captive programs (67%); 44 of the 48 recognized genera were represented in these recommendations. Of the 154 recognized species, 199 are recommended for captive programs (77%). Thirty-five species are not represented in captive program recommendations.

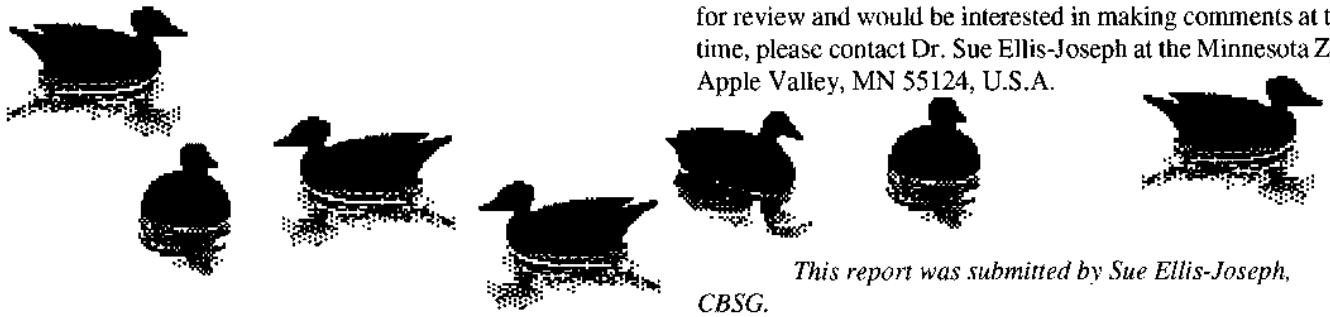
For taxa that are not currently in captivity but are of concern and tentatively recommended for captive programs, we recommend that programs be established only after a PVA has been held. Initial captive programs should be established in the country of origin whenever possible.

For genera not present in captivity it is recommended that trial husbandry programs be established with a lesser threatened species in the genus prior to bringing more than one species into captivity. For taxa for which taxonomic research has been recommended (111), existing captive programs should maintain currently described subspecies separately, when feasible, while taxonomic clarification is being pursued.

Based on taxonomic uniqueness, population numbers in the wild, and population numbers in captivity, it has been recommended that some Safe species be managed to lower numbers in captivity. Some recommendations to retain Safe species in captivity are based on worse-case scenarios (e.g., rapid, massive depletion in the wild).

Decisions to eliminate some Safe species from captive programs are based on numbers in the wild (i.e., more than 200,000 individuals) and to some extent on geographic range. Less conservative recommendations were often made for North American and Paleoarctic species, as these populations are monitored fairly closely. In case of a rapid decline, conservation biologists could respond quickly in bringing the birds into captive programs. Recommendations for Asian, South American, and Southern African taxa tended to be more conservative. In many cases, little is known about population numbers and these areas are recommended for intensive survey work.

The authors of the Global Waterfowl Captive Action Plan wish to emphasize that the draft summary in the CBSG Briefing Book is in its infancy and will be added to considerably before going out in review form. As with all the CAPs, the Global Waterfowl Captive Action Plan is evolving and new information is assimilated as it becomes available. There is at present no Waterfowl Specialist Group. If CBSG members would be interested in receiving a Global Waterfowl CAP draft when it is ready for review and would be interested in making comments at that time, please contact Dr. Sue Ellis-Joseph at the Minnesota Zoo, Apple Valley, MN 55124, U.S.A.



This report was submitted by Sue Ellis-Joseph, CBSG.

Hornbill Conservation Action Plan Workshop

The Bucerotidae, or Hornbills, comprise a relatively distinct family of birds characterized by a unique mating system in which females wall themselves into nesting cavities for incubation and chick rearing while the male provides food. The birds are typified by a large body size and a long, heavy bill, which is frequently elaborated into a casque.

Distributed in the old world tropics, the family falls into two taxonomically, geographically, and politically distinct groups. In September of 1991, 49 individuals, representing 15 countries met in Singapore to develop conservation strategies for Asian Hornbills. Field biologists, NGO's, wildlife and forestry experts, conservation biologists, taxonomists, genetics, captive managers, and veterinarians were represented.

All available data on the distribution and abundance of Hornbill species had been gathered and summarized in preparation for the meeting. Several taxonomic revisions have been published recently. For purposes of examination, the maximum number of published subspecies were used. Additional taxonomic information was incorporated into each discussion, where available.

Four working groups were developed to consider in detail subspecies occurring in India, Indonesia, the Philippines, and peninsular Southeast Asia (Thailand, Malaysia). Each subspecies was discussed individually, first by the working groups, then by the assembled congress. Population estimates were developed and threats listed for each. Each subspecies was assigned to one of the Mace-Lande categories. Of 51 taxa, 11 were characterized as vulnerable, 11 as endangered, and four as critical. Habitat loss from logging was the principal cause of threat.

Recommendations and priorities for both *in situ* and *ex situ* management were made. Where subspecies occurred in two or more geographic units, consensus was reached by the working groups. Additional working groups were formed to consider overall conservation action priorities and specific strategies. Details of the meeting will be available in the Conservation Plan, which will be published in 1992.

This report was submiited by Christine Sheppard, New York Zoological Park, and Wendy Worth, San Antonio Zoological Gardens.

Development of a Felid Action Plan

A global action planning document for extant felid species and subspecies was conceived and developed at a meeting held at the National Zoo's Conservation and Research Center in Front Royal, VA on May 2-5, 1991. The meeting was jointly sponsored by the American Association of Zoological Parks and Aquarium's newly formed Felid Taxon Advisory Group (TAG) and the IUCN's Cat Specialist Group and the CBSG. Drs. David Wildt and Jill Mellen, TAG Co-Chairs, Peter Jackson, Chair of the Cat Specialist Group and Ulysses S. Seal, Chair of the CBSG led the discussions among the 30 participants and edited the resulting 100-page Action Plan.

The document contains narrative, discussing status and conservation of wild cats; *in situ* conservation wild felids; research/management of wild felids in zoos; carnivore space surveys and regional studbooks; issues associated with animal transactions; taxonomic considerations of felid species and subspecies; medical, nutritional and reproductive considerations for felids; establishment of a genetic resource bank; and policy on the culling of surplus animals. The document also contains detailed status reports for all species and subspecies of felids including: degree of threat according to Mace-Lande criteria; status under CITES and the U.S. Fish & Wildlife Service; global distribution; ongoing field studies; estimated number of individuals in captivity and the wild; and recommendations on research/management, the type of captive breeding program required and the need for a population viability analysis.

This first edition of the Felid Action Plan, considered a "living" document, will be updated on an annual basis while serving as a basis for making more detailed recommendations. The next action planning meeting is scheduled for March 20-22, 1991 in Front Royal. Agenda items include: making recommendations for *in situ* management for specific species/subspecies; prioritizing taxonomy studies; designating priority species for North American captive breeding; recommending and prioritizing new taxa deserving studbooks; recommendingallocation of captive holding/exhibit space; recommending target population sizes for priority taxa; taking further action on managing generic and "safe" populations in captivity; and updating research efforts and PVA plans.

For further information and to receive future copies of updated Felid Action Planning documents contact the CBSG office or David Wildt, National Zoological Park, Smithsonian Institution, Washington, DC 20008, USA, Fax: 202-673-4793.

This report was submitted by David Wildt.

Chiropteran Action Plan Working Group: Report and Recommendations

Last year at the 1990 CBSG annual meeting in Copenhagen, Denmark, the Chiropteran Working Group recommended that two species, *Pteropus livingstonei* and *Pteropus voeltzkowi*, be identified as priorities for captive breeding programs because of their precarious situation in the wild. Collection projects have

been undertaken by Jersey Wildlife Preservation Trust for *P. livingstonei* and by Roland Wirth of the Zoological Society for Species and Populations in cooperation with the Phoenix Zoo for *P. voeltzkowi*. Both programs have encountered difficulties because the behavior and habitat of these animals makes their acquisition extremely problematic. A report on the 1990 research conducted by Jersey Wildlife Preservation Trust will be published in the next *Dodo* (available in November 1991).

The second recommendation made at the 1990 meeting was to complete surveys of bat collections in North American and European zoos which would assist in the captive action planning process. Unfortunately, the individual identified to complete a the survey of European institutions has left the zoo field. However, there has been some discussion of the survey being conducted through the Executive Offices of the EEP.

N. Fascione was asked to undertake the North American survey. The purpose of the survey was three-fold:

1) To determine the amount of space available for the captive breeding and exhibition of bats in North American zoological institutions;

2) To quantify the variety and number of bats held in these facilities; and

3) To assess the interest of directors and curators in establishing cooperative captive breeding programs for endangered species.

In addition, a bibliography was compiled of current literature on captive management and husbandry of bats along with a list of endangered and threatened bats as listed by the IUCN Red Data Book, CITES, and U.S. Fish and Wildlife Service.

Also, 128 surveys were sent to AAZPA-accredited institutions; 125 responded. A brief summary of the results follows:

1) 56 of 125 institutions (44.8%) house bats.

2) There are currently 3,261 bat "spaces" in North American facilities.

3) 22 species of bats are being maintained in North American institutions. However, only one of these, the Rodrigues fruit bat (*Pteropus rodricensis*), is currently listed as endangered.

4) The most common species held in zoos according to the survey are as follows:

1. *Carollia perspicillata* (38.2%)
2. *Artibeus jamaicensis* (32.5%)
3. *Rousettus aegyptiacus* (8.2%)
4. *Desmodus rotundus* (6%)
5. *Pteropus giganteus* (5.3%)

In contrast, ISIS data from this same period listed *Desmodus rotundus* as the most numerous at 20.9%, followed by *Pteropus giganteus* at 18.4%;and *Rousettus aegyptiacus* and *Artibeus jamaicensis* at 14% and 9%, respectively. In addition, ISIS reports listed 907 individuals versus the 3,261 reported in the survey. Obviously ISIS has not been receiving a full count for the smaller colonial species. Hopefully this will change now that ISIS has changed their billing format and is no longer charging by the individual.

Exhibit and identification information was also collected and those interested in obtaining results of the survey can contact N. Fascione, 5601 Lincoln Street, Bethesda, MD 20817, USA Tel: 301-493-4990). Additional survey results can be summarized as follows:

1) There are over 35 endangered species listed by IUCN, CITES, and U.S. Fish and Wildlife Service. In addition, all of the Pteropids are now listed on CITES Appendix II. However, a majority of North American bat spaces are currently taken up with non-endangered varieties. With over three thousand spaces available for bats in North American institutions the potential to implement captive breeding programs is great.

2) Many curators and directors expressed a need for better, or more, husbandry information. This will become even more crucial as studbooks and cooperative breeding programs are established and detailed information on geneology is needed.

3) There is much interest in bats within these organizations. Twenty-eight out of 69 North American zoos which do not have bats at present plan to acquire specimens within the next five years. In addition, over 40% of the total respondents indicated that they would like to participate in an organized captive breeding program for endangered species.

Recommendations of the Chiropteran Working Group

The CBSG Chiropteran Action Plan Working Group recommends that:

1) A survey of European institutions be completed, preferably within the next six to eight months, for strategic planning purposes;

2) Regional advisory groups, similar to the recently formalized AAZPA Chiropteran Advisory Group, be established (i.e. Europe and Australasia) and that these groups collaborate and create a formalized CBSG Action Plan Working Group;

3) An International Studbook be created for the Rodrigues fruit bat (*P. rodricensis*). This will be developed as a model program for Chiropterans. Jersey Wildlife Preservation Trust has been approached to initiate this activity since they have already been coordinating breeding loans for this species. One special problem encountered when managing colonial species such as bats is individual identification and record keeping. The AAZPA Chiropteran Advisory Group is currently collecting information on identification procedures;

4) Once formalized, the CBSG Action Plan Working Group, in collaboration with the IUCN Chiropteran Specialist Group, should hold a PVA and Conservation Action Plan Workshop for Pteropids to identify priorities for conservation efforts; and

5) Individuals and institutions conduct research and publish information on megachiropteran biology, husbandry, and management as there is relatively little information available.

This report was submitted by Nina Fascione, co-chair, AAZPA Chiropteran Advisory Group

Faunal Interest Groups: Zoo Conservation with a Regional Focus

Introducing the FIG Concept

The Fauna Interest Group was begotten in the midst of a certain loathing. The year was 1989 and the Wildlife Conservation and Management Committee (WCMC) was undergoing reformation. New bureaucratic layers emerged, the Species Survival Plan (SSP) Subcommittee was transformed, and Taxon Advisory Groups (TAG) and Fauna Interest Groups (FIG) emerged. Many of you may wonder what exactly is a FIG? According to the WCMC Handbook, a Fauna Interest Group "coordinates the conservation activities of AAZPA-member institutions working in specific geographical regions." More specifically, FIG members actively foster cooperation and communication with in-country wildlife agencies, zoos, and non-governmental organizations in an effort to help establish nature reserves, support existing parks, conduct field research, train personnel, educate the public about wildlife and environment, and when appropriate obtain animals for cooperative captive propagation programs.

Like TAGs, FIGs were regarded with foreboding by some of our members who discerned a malignant scheme in the acronym which, like the fig's small seedy fruit, would grow to embrace, overwhelm, and finally strangle the organism which lead it to light. Actually, the FIG is still a young, and therefore benign, thing which aims to assist, guide, and coordinate the initiatives of AAZPA members abroad. Five FIGs have germinated: Indonesia/Malaysia, Brazil, Madagascar, Zaire, and Vietnam/Phillipines.

Birth of an idea

The FIG idea evolved from international interests within the North American zoo community that were manifested in various activities of the CBSG, the SSP program, the International Zoo Association Liaison Committee, the Zoo Conservation Outreach Group, and the Madagascar Interest Group. In essence, the FIG concept resulted from a number of independent ideas that converged during the 1980s. David Anderson's (1990) paper on the Madagascar Fauna Group contains the details of how such an initiative came to be. Its philosophy, goals, and working plan are a excellent example of how a FIG can succeed.

The FIG is a departure from historical zoo ventures abroad which were basically single-institution, short-term extractive enterprises. However, "We do no zoo of an earlier time justice if we judge it by the standards of our more 'enlightened' age"[1]. So, let's briefly examine zoo history in the international realm. Since their beginnings, western zoos have had commerce with tropical countries. The "bring-'em back alive" method made good press and zoo and museum expeditions alike popularized their adventures in films and books (Mann, 1934; Crandall, 1931; Attenborough 1956; 1957). The most creative enterprise of this sort was the Hagenbecks' combination of creative exhibit development with a state-of-the-art exotic animal dealership (Hagenbeck, 1912). Since the political scene was generally receptive in the colonial tropics, permissions and arrangements were often acquired easily (if not cheaply).

The collapse of colonialism after the Second World War changed this and with each successive decade the problems of mounting a collecting expedition became more difficult. Whereas the traditional zoo view of international cooperation might be characterized as a quick and dirty "let's get in and get the animals out", growing awareness of the environmental predicament has since inspired a different approach. An interest in acquiring new stock for SSPs, for example, is more likely to dwell on finding ways to reciprocate. But the trappings of this earlier era are alive and well in many developing countries where threatened species are often viewed as commodities and are more successfully used in the political and economic, rather than the conservation, arena.

FIGs and Consortia

The interest of AAZPA members in cooperative international projects has spawned several consortia, trusts and foundations. These formalized relationships have clearly defined legal obligations that differ significantly from a FIG. As far as we can gather, they all involve "temporary cooperation of several interests to effect some common purpose" and the collection of a "charge or duty" (i.e. a recurrent contribution) to implement the goals of the program. Their goals have generally focused on the conservation of threatened species using captive propagation and their organization has not followed specific guidelines.

In contrast, a FIG is a group of interested parties who informally agree to cooperate in pursuing common goals related to conservation. In theory therefore, an AAZPA consortium could be a member of a FIG. In practice though, consortia and trusts have conducted their business before the FIG's invention. The relationship and interaction of these entities will continue to evolve as experience is gained.

Consortia, Trusts, and Foundations have generally enjoyed great independence in pursuing their goals and whatever benefits were gained from the Association's endorsement. Lawyers, on the other hand, argue that without clear guidelines and agreements, unanticipated conflicts and problems could arise which reflect on the association. To clarify the nature of these relationships, the Board of Directors recently adopted considerations and procedures for establishing future programs recommended by a special taskforce[2]. These recommendations should be considered in organizing all new FIGs, Trusts, and consortia.

Organization and Function

The primary responsibility of managing the FIG resides in the chairperson and an optional co- or vice-chairperson, both of whom are expected to be knowledgeable of and have personal

experience in the region represented. While foreign service training isn't required, FIG chairpersons should have the necessary diplomacy and cultural sensitivity to interact successfully with officials on the association's behalf and among their own members and colleagues. Chairpersons are expected to conduct their business with a large measure of independence, but receive oversight from the AAZPA WCMC Chairman and the AAZPA Director of Science and Conservation. The chairperson needs considerable time to devote to FIG activities. FIGs will also benefit from close interaction with the CBSG which is promoting the same activities at a global scale.

The chair and vice chairpersons are expected to become aware of their colleagues' interests in the region by virtue of their own active participation in the region and in the association. As such, they should communicate the activities of members and other biologists with similar interests to the membership. A newsletter is the suggested means. For example, the IMFIG communique was published in the CBSG Newsletter.

Other aspects of management are under development. Advisory groups are being considered as a way of enlisting the involvement of active and informed participants including, where possible, native biologists of the region.

Membership in any FIG is not voluntary. The Group is not a means of coercing participation, but the goal of the group is to bring about greater effectiveness in pursuing goals within a region of interest. It should be noted that a small number of zoos have highly successful programs on the ground in a number of countries. Fauna Interest Groups are in a position to benefit from their experience.

It should be emphasized that achieving a FIG's conservation goals hinges on the cooperation and open dialogue of all participants. The effectiveness of the group can be seriously compromised when a member deviates from the group plan and attempts to make a separate and independent deal while abroad in a FIG region. A unified and consistent approach will reap the best results in pursuing program goals.

Continuity of effort can also be reinforced by retaining the services of a biologist in the target country. This has been an important component for example in the Bali Mynah SSP and Reintroduction.

This summer the AAZPA received Private and Voluntary Organization status with the United States Agency for International Development (USAID) which now enables the Association to apply for operational program grants such as the Program in Science and Technology Cooperation (PSTC). This holds considerable promise for Fauna Interest Groups able to develop proposals for broad based programs.

A Position Description of a FIG Chairperson

1. Fosters cooperation and communication between AAZPA members who share interests in region's fauna and its conservation.

2. Keeps abreast of current zoological and conservation events in the region of interest.

3. Shares information about FIG activities and the conservation scene through correspondence and publication of a newsletter with members, potential members, interested organizations and agencies.

4. When necessary, represents the collective interests of the FIG members to conservation agencies in the region, and fosters cooperation by sharing information and findings with officials in relevant agencies.

5. Coordinates collective proposals for funding projects in the region.

Chronology of FIG Activities

While each FIG may proceed differently, a logical chronology of activities would begin with a determination of who is working in the conservation arena. This means identifying those FIG members who have visited or worked in the region and those biologists and conservationists external to the FIG who are active in the region. Some of these latter people might be recruited to join the FIG, or at least requested to contribute information to the newsletter. Organizations in the arena are the other critical components that must be known and this includes the government wildlife agency and active national and international NGOs.

The second step is to develop a menu of projects of mutual interest to the country's wildlife agency and the members of the FIG. Naturally, the expertise of the FIG may not encompass all the projects the wildlife agency wants to pursue, but it is likely there will be a few. It is also likely that some of the FIG's project proposals will interest the agency or the NGO. The goals should be explicit and its benefits should be bilateral.

Third, the FIG will have to raise funds to do the work. Individual proposals can be written to obtain funds for small projects or a large proposal could be prepared to cover the costs of several related projects. In some cases, Fauna Interest Group members may successfully solicit contributions from their mother institutions as has been done in the Madagascar FIG. As in the past, member zoos are a potential source of funds, if not in cash, by supporting the travel and field support of their own personnel. However, funds increasingly will have to be sought from NGOs with similar commitments.

And fourth, progress towards goals should be monitored regularly through progress reports and other communications. In this connection, a field representative can be instrumental in reinforcing progress abroad.

FIGs and the Future

The Fauna Interest Group is a relatively young concept, but a direct approach by which zoos can collectively foster conservation action by zoos in the developing world. As such, it is an experiment which will challenge the skills and talents of our members and it promises to be an enriching experience.

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Footnotes

[1]We've corrupted Jonathan Yardley's quotation by some minor substitutions (Washington Post Book World, 10 Dec. 1989)

[2]"AAZPA Recommendations on Trusts, Consortia, and other Cooperative Programs"

Appendix 1: Suggested Guidelines for International Trusts

Finance and Reporting

1) Members, agencies or NGOs (foreign or domestic) that receive grants through a trust or consortium should be accountable for expenditures and provide receipts and other records as evidence.

2) Monies should be used to support conservation activities and not for purchase of animals.

3) Consultant fees to officials are permissible if reasonable (based on NGOs fees) and the consultation supports the goals of the trust or consortium. Consultant fees should be justified in the proposed budget.

4) An Annual Progress Report should be submitted to AAZPA WCMC and the Director of Conservation and Science. The report should include an accounting of all expenditures .

5) Reports and publications resulting from the project should be sent to all participating agencies and organizations.

Legal considerations

1) Legal counsel must be sought in the preparation of the project plan.

2) The issue of liability should be dealt with in the plan.

3) Careful consideration should be given to whether the group is best set up as a foundation, trust, consortium, etc.

Components of Participation

Personnel

1) In-country personnel should be employed whenever possible.

2) A representative of the trust or consortium should be on the ground or visit periodically to represent the interests of the management committee and to ensure accountability. When feasible, a qualified host country national is preferred; a foreign national may suffice if a qualified national is not available.

3) A management committee composed of qualified biologists and including foreign collaborators representing all participating institutions and agencies should be established to administer and promote the goals of the project.

4) The management committee should have a chairperson elected by the management committee who will communicate all proposals and decisions to committee members and others.

5) The management committee should have someone to administer follow-up activity, promises, and schedules.

Reciprocity

1) Projects should include an educational component in the country of origin focused specifically on the species in question.

2) Projects should be an integral part of long-term conservation programs which may already be in place in the country for the species of interest.

3) A project should include transfer of technology, equipment or supplies to the country of origin in direct support of both *in-situ* and *ex-situ* conservation efforts

4) Direct investment in *in situ* conservation should be a component of all endangered species projects. These activities include technology transfer and other contributions to protected area management, resource protection, and faunal surveys.

5) An *ex-situ* project should include the construction of breeding/holding facilities in the host country to aid with acclimatization to captivity, the development of local expertise, and where applicable, for reintroduction.

6) If a North American captive population results from the project, participation in a regional and international studbook and SSP is strongly encouraged and the species in question should be prioritized for captive breeding by the IUCN/SSC, IUCN/CBSG, and/or appropriate Regional Taxon Advisory Group.

7) Ownership of all CITES I animals should stay with country of origin.

8) Removal of animals for captive propagation should not have a detrimental impact on wild populations, and proposals for such should include an assessment of possible detrimental effects. If the information required for this assessment does not exist, it is the responsibility of the management committee to undertake such efforts such as population surveys and habitat assessment.

9) If the program is intended to include a reintroduction component, the proposal should include a projected time schedule for releases and a plan for how it will be accomplished.

10) Cooperative research efforts should be encouraged, especially between consortium members and in-country partners. This should include shared responsibilities and shared credit.

11) Publication of results of all surveys and research should be encouraged .

Publicity

1) All cooperating agencies and organizations should receive equal credit in all media coverage.

2) The chair of the management committee should be the primary contact for all media contacts. North American media coverage should be coordinated out of the AAZPA Conservation Center and every effort should be made to publicize achievements. An effort should be made to provide media coverage to counterpart agencies in-country.

3) Lastly, all programs must conform to the laws of the country of origin as well as to international laws.

Appreciation of the ecological situation in the developing world and the belief that zoos can have a positive effect are new ideas, which build on the realization that many of the tactics of the past just don't work well any more.

This report was submitted by Chris Wemmer, Conservation & Research Center, National Zoological Park and David Anderson, San Francisco Zoological Gardens.

Report of the Brazilian Fauna Interest Group

The IUCN-CBSG Global Brazilian Fauna Interest Group (FIG) is being formed at the request of CBSG chairman, Dr. Ulysses Seal. Being one of the most important countries in the world in biodiversity and endemism of species, Brazil is an area of high priority and concern for conservation efforts. The IUCN-CBSG Global Brazilian FIG is being established to help coordinate and foster cooperative exchanges of technology and information with Brazil by establishing a network of individuals and institutions interested in the conservation of Brazilian species.

A preliminary meeting of the IUCN-CBSG Global Brazilian FIG was held at the CBSG meeting in Singapore. It was agreed that the primary goals of the group will be to help coordinate and facilitate the involvement of interested zoological institutions in conservation efforts in Brazil. The involvement could include support for field studies, habitat preservation, captive breeding programs, personnel training programs, and research. The need for this to be a collaborative effort with the governmental and zoological institutions in Brazil is an integral part of the Global FIG concept. An invitation is being extended for the active participation of the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA) and the Brazilian Zoo Association (SZB). The involvement of Brazilian conservation non-governmental organizations (NGOs) will also be encouraged.

The initial steps in establishing the IUCN-CBSG Global Brazilian FIG will be: 1) identify interested individuals and organizations on a worldwide level, 2) establish a communication network to disseminate information to group members, 3) formalize the internal and financial structure of the Global Brazilian FIG, and 4) identify potential projects and areas of concern for the Global Brazilian FIG.

On the regional level, the AAZPA Brazilian FIG has formed and will be operating as an integral part of the IUCN-CBSG Global Brazilian FIG. A number of programs have already been initiated on this level and will be incorporated into the framework of the Global FIG. The expected formation of other regional FIGs will increase the network of individuals and institutions involved in cooperative conservation efforts in Brazil.

As part of the effort of FIGs to promote the exchange of information within the international zoological community, Dr. Adauto Nunes, president of the Brazilian Zoo Association (SZB), attended the AAZPA Conference in San Diego, California as a guest of the AAZPA Brazilian FIG. Claudio Padua, director of the newly-formed Brazilian NGO IPE-Instituto Pro Ecologia, received support from Conservation International to represent the Brazilian Zoo Association (SZB) at the CBSG meeting in Singapore. As the regional conservation coordinator for Brazil, he represented the SZB at the initial meeting of the Global Brazilian FIG. The direct representation of Brazilian zoos at the AAZPA and CBSG conferences, as well as at the regional and Global FIG meetings, signal an increased involvement in the international zoological community.

A planning session for the IUCN-CBSG Global Brazilian FIG will be scheduled for 1992. Reports and updates on the progress of the group will be published in the CBSG News. For information please contact: Natasha Schischakin, Houston Zoological Gardens, 1513 N. MacGregor Way, Houston, Texas, 77030. U.S.A. Tel: 713-520-3218, Fax: 713-525-3330; or Jeremy Mallinson, Jersey Wildlife Preservation Trust, Les Augres Manor, Trinity, Jersey, Channel Islands. U.R. Tel: 44-0534-64666, Fax: 44-0534-65161.

Ethiopia Update

Following the PVA Workshop held in Bale National Park in June 1990, we have continued to support a number of conservation initiatives in Ethiopia. The workshop was attended by representatives of the Ethiopian Wildlife Conservation Organisation, CBSG, the New York Zoological Society (Wildlife Conservation International), ZSL, and the San Diego, Cincinnati, and Los Angeles Zoos. Ethiopia has the highest rate of endemism of continental Africa (most of it associated with the highland areas) and is desperately

in need of long-term commitments to save its unique species.

The fragility of the Ethiopian situation was clearly demonstrated during the recent political upheavals. Bale National Park was overrun and its critical population of mountain Nyala was shot and dispersed. Senkelle, which held over 2,000 Swayne's hartebeest, was also overrun. Only 40 Swayne's were seen, where previously it was possible to see almost all 2,000 from a single vantage point. The Simien jackal undoubtedly also suffered, but it is not known to what extent.

In view of the vulnerability of Bale, we are sponsoring the biological survey work necessary to support the establishment of a second national park for Nyala. We are also providing a four-wheel drive vehicle for the Awash National Park and training for the warden of Omo. Negotiations are currently underway with a UK corporation aimed at generating sufficient income for the establishment and support of a third highland protected area in the region of Wufwasha. In the meantime, we are also continuing with the genetic analysis of Simien Jackal samples to determine whether introgression with domestic dogs is occurring. So far, there is no evidence to suggest that it is.

This report was submitted by Alexandra M. Dixon, Conservation Officer, ZSL

Vietnam-Phillipine Working Group Minutes

Present: Lee G. Simmons, Omaha's Henry Doorly Zoo, United States; Graham F. Mitchell, Melbourne Zoo, Australia; Vern Weitzel, Australian National University - Australian Primate Society and Australian Vietnam Society; Ardith Eudey, IUCN/SSC Primate SPSP; Michael Woodford, Chairman, SSC Veterinary Group; Marlynn M. Mendoza, Protected Areas and Wildlife Bureau; Carlo C. Custodio, Chief, Wildlife Division, Protected Areas and Wildlife Bureau, Phillipines; Alexandra Dixon, Zoological Society of London Chris Banks, Melbourne Zoo, Australia

An update on the Philippine situation was provided by Carlo C. Custodio, Chief, Wildlife Division, Protected Areas and Wildlife Bureau.

Problem

There are very limited workers in wildlife in the Philippines who are expected to tackle an enormous number of problems in wildlife today. The background to these problems are the following:

1. The Philippine Government reorganized the Department of Environment and Natural Resources (DENR) three years ago. The main features are that the different line bureau (such as the Bureau of Forest Development and Bureau of Lands) have been reduced to mainly become staff bureaus or advisers to the Secretary of the DENR. Field implementation of the DENR's projects and programmes are left to the DENR regional offices where all sectors are represented and work under one office for efficiency and closer coordination. One benefit derived from this reorganization is the fact that the Protected Areas and Wildlife Bureau (PAWB) has been elevated from just being small unit in the Bureau of Forest Development to one that is on the same level as its former mother agency.

However, even if PAWB has been elevated in rank, it has been given the least preference in terms of personal allocation and funding, especially for support of the sector representing PAWB in the Regional Offices. There are only around 600 employees to staff this sector compared to the total DENR work force of about 22,000. Moreover, the reorganized agency has only been able to hire a very limited number of personnel who have the appropriate training and/or interest in wildlife conservation and management. Because of these shortcomings there has been a perceived need to upgrade the skills of the present staff of the DENR so they can assist in the overall Philippine conservation effort. In the first place, DENR has been mandated to attend conservation related activities.

2. There are at least three universities producing graduates of Wildlife Management. These graduates cannot easily be absorbed within the government system because of limited employment slots and funding limitations.

3. We have been looking at the role that private organizations can play in conservation. We have identified quite a few who could make contributions.

Other issues

Another angle which should be explored is the World Bank financed project for the establishment of an Integrated Protected Area System (IPAS). This project, however, would only concentrate on ten priority areas, the distribution of which depends on the identified geographical regions in the Philippines. This project will leave out biological hot spots which would cater to important species and which are outside of the IPAS-designated area.

Conservation efforts on individual species in the Philippines have not really gotten of the ground. A case in point is the Tamaraw (*Bubalis mindorensis*) Conservation Program. The establishment of a fall-back population outside of its known habitat has met opposition from the local people and government of Mindoro Occidental due to false perceptions as a result of a disinformation campaign waged by some sectors. Protection of the Tamaraw by the DENR has also not been very effective due to very limited personnel who are charged with protecting a very extensive area.

The Philippine Eagle or Monkey Eating Eagle (*Pithecophaga jefferyi*) has also been given substantial support since the middle seventies. This project, however, has not yet been able to successfully breed birds in captivity. It is to the credit of the Philippine Eagle Conservation Project Foundation Incor-

porated that technologies in captive breeding have been developed. They have also been conducting extensive field research on the species, as well as an effective public awareness program on eagle and forest conservation. As with the Tamaraw, protection of the birds in their known range has not been very effective due to the size of the area involved and limited personnel. In the past months at least two eagles have been reported to have been lost. Most efforts on the eagle have been concentrated in the past on the Southern Philippine population on Mindanao. The DENR has started this year to focus attention on the northeast Luzon population of the species. Funds and personnel for this project are very limited.

Recommendations

Based on the above issues, it is recommended that a workshop be organized to focus on the Philippine situation with particular regard to its threatened species. It is suggested that the species involved should include the Tamaraw and the Philippine Eagle, both of which may serve as case studies to indicate overall conservation priorities and problems in the Philippines. These species could well serve as umbrella species to help preserve critical habitat and other threatened species.

Broadly, it can also be suggested that the workshop address and identify overall conservation needs in the Philippines including biological hot spots and critical species. It is also suggested that options for developing an effective conservation infrastructure which would include the provision of opportunities for the transfer of technical and field skills to DENR employer, students and other interested sectors be identified. Ways and means of recruiting and absorbing graduates of existing wildlife programme into an effective Philippines conservation system are also needed.

Additional Philippine Notes

Tamaraw

A survey was conducted February 1990 by M. Woodford and R. Cox. The local provisional government in Mindau passed a resolution against moving Tamaraw to any other island, but have now tentatively agreed to allow transfer of a pair. There is a plan to use KMF (Nature, Mendora foundation - a local group on Mendora sponsored by Conservation International, Washington, DC) who are approved to transfer to other Philippine Islands or to at least help protect habitat and support captive breeding. It is estimated that a possible total of 250-350 Tamaraw remain. Los Spanyous facility on Luson has a suitable facility for Tamaraw due to a water buffalo project.

Cloud Rats

This group needs taxonomic study. Some species are going extinct before they have been described. Bats and many other species are also disappearing. Tarsi is project on captive breeding being sponsored by AT Viri (a private dealer).

Vietnam

The situation in Vietnam with regard to implementation of active conservation programs and action plans remains largely unchanged from last year.

Primates

During July-October, 1989, a preliminary survey of primates in North Vietnam was done by Ratajszczk, Cox, and Ha. They conclude that virtually all primates in Vietnam are under severe pressure and that langurs and gibbons are in particular difficulty due to habitat destruction and hunting. It has been recommended that captive breeding programs be considered for a number of species, some of which are endemic to Vietnam. Specific programs are needed for the Tonkin snub nose, golden headed langur, concolor gibbon, and delicures langur.

The pheasants of Vietnam are also in trouble. A plan proposed by R. Wirth addresses the three rarest endemic species, *imperialis, edwardsi*, and *hetinhensis*. Edwar'ds pheasants appear to be extinct in the wild. Captive breeding programs are based on a very small founder base brought out 60 years ago. Aggressive captive management and a reintroduction program are recommended. A survey for Edward's pheasants was carried out in early 1991. Habitat protection and management are needed.

The Javan Rhino apparently still exists in small numbers. There have been at least one, and possibly two, documented cases of poaching.

The Kouprey program in Vietnam is presently at a standstill. Surveys were conducted in the Yok Don Preserve for potential Kouprey range by Laurie in 1989 and Cox in 1990. An encounter with Vietnamese insurgents in October 1990, in which three members of the Cox survey party were wounded, ended further work until boarder problems are resolved.

During a transit of South and Central Vietnam by Simon Stuart and Lee Simmons in November 1990, here was evidence of extensive deforestation with numerous logging trucks and new sawmills. Total forest cover is estimated at only 9%. Some areas in central highlands still have approximately 30% forest coverage.

On the positive side, cooperation between Vietnam and Australia are good due to good political relations. Areas of cooperation include migratory birds, primates, and forest conservation. Canberra University has an agreement with Hanoi University on a series of projects including one on sea turtles. Academics from Canberra University have also participated in an annual ecology seminar series in Hanoi University. Three ecologists from Hanoi University are doing master's level research in Canberra. Adelaide Zoo is currently raising funds for ecology-research in Vietnam, and it is also considering captive breeding program for Vietnamese primates. A general conference on Vietnam in Canberra later in October will have a natural science/environment forum where relevant issues will be discussed. It will be held at the Australian National University.

Muenster Zoo, in Germany, has a memorandum of agreement to provide funds for a Vietnam Sika deer project.

The resolution of the Cambodian problem and ultimate normalization of relations between Vietnam and the West will

hopefully provide the mechanism to develop and fund additional conservation programs.

The Kouprey Project

The Kouprey Project in Laos is progressing. A questionnaire survey of a number of villages in Southern Laos by R. Salter in 1989 indicated that Kouprey had been present in the recent past and that small populations may still exist along the Laos Cambodian border areas. A survey, sponsored by the Kouprey Trust, was conducted in Southern Laos P.D.R. (provinces of Ctiampassak and Attapeu) by R. Cox in April and May 1991 in cooperation with the Department of Forestry and Environment.

A credible report of three animals, including a massive male, at the beginning of 1990 was obtained. The survey team found tracks identified by their guide as a large bull fitting the description given by Warton for Kouprey tracks, but they did not sight any animals. A second survey in Southern Laos, supported by the Kouprey Trust, has been scheduled by Cox for May of 1992.

This report was submitted by Callo Custodia, PAWB and Lee Simmon, Henry Doorly Zoo.

Zaire Faunal Group

During discussions at the Bonobo Workshop in San Diego on 6-7 May 1991, it was decided to form a Zaire Faunal Group in the near future. The steering committee for Bonobo Conservation problems in Zaire concluded that the problems of the Equatorial basin in Zaire where the bonobos live could not be separated from the many other conservation topics in that area. Areas such as the Ituri forest or Kivu are also of top priority for fauna and flora preservation. Sustainable development is the key issue for future success.

During the bonobo meeting, Dr. Mittermeier pointed out that "Zaire has the second highest tropical forest cover in the world, is the third-ranked in species after Brazil and Indonesia, is the fourth richest in overall mammal diversity, and is the most important in Africa for forest and species diversity. Together, the okapi, Congo peacock, and bonobo comprise three flagships in Zaire which could be targeted and incorporated into development programs". I would certainly add the Graueri Gorilla.

A Zaire Faunal Group must be formed from several organizations who will pool their knowledge and resources. Potential candidates for a Zaire Faunal Group are:

1) The Zaire Governmental Organizations dealing with nature conservation and scientific research.

2) IUCN/CBSG and IUDZG (SSP, EEP), represented by the institutes which hold the international studbooks of endemic species of Zaire.

3) *In situ* research teams.

4) World Wildlife Fund for Nature.

5) Other non-governmental organizations with Zaire experience.

6) Financial powers such as the World Bank, FAO, and UNEP.

This list in not limiting. The chances to start are practically slim for the moment due to the very unstable political situation. One must wait until more stability is established. Full cooperation of the Zairean Government is mandatory for long-term success. Nevertheless, a mission statement could be worked out by a first "core-group". I hope that by the next CBSG meeting, we can report serious progress.

This report was submitted by Fred J. Daman, Director, Royal Zoological Society of Antwerp.

Arabian Peninsula Captive Breeding Group

This group will promote the active cooperation between the different zoos and captive breeding programs within the Gulf area in order to promote the conservation of indigenous species. This will be achieved through: 1) cooperative captive breeding programs, 2) reintroduction programs, 3) personal training and educational programs, 4) contribution to research programs on the Arabian species, and 5) any other actions that could contribute to conservation of Arabian species and ecosystems.

The group will work primarily on regional Action Plans in close collaboration with the other regional or international conservation organizations. This proposal has been drawn up by the following delegates from Gulf-area institutions present at the CBSG meeting in Singapore: Al Areen Wildlife Park, Bahrain; Dubai Zoo, U.A.E.; National Commission for Wildlife Conservation and Development, Saudi Arabia. The delegates recommend that a working party should be set up to discuss the viability of those proposals.

Preserving Critical Habitat: The Minnesota Zoo's Adopt-A-Park Program

The idea of a Zoo conservation partnership with Indonesia originated at a meeting organized by the Species Survival Commission (SSC) of the World Conservation Union (IUCN) in June of 1989. Assembled were rhino biologists, conservators and enthusiasts from around the world. After three days in Bogor

(Java), Indonesia they produced a Rhino Recovery Plan that was to give direction on how to save Javan and Sumatran rhinos throughout their range from extinction.

One of the many documents that were circulated at the meeting was an inconspicuous report. Its conclusion was that the most important conservation issue in the Park was the lack of a communication and transportation system necessary for effective anti-poaching activities by Park staff (Ramono and Santiapillai, 1989). Total costs were about $25,000. It seemed curious that in order of priorities, rhino conservation was Indonesia's highest priority. Ujung Kulon National Park was the most significant site for Javan rhino conservation. Park staff needs for equipment to ensure protection of Javan rhinos was the highest priority. All of this came down to a relatively straightforward appeal that in itself was modest in cost, but enormously important in its ability to have significant impact.

That report caught my attention and formed the basis for developing a conservation initiative. The significance of conserving rhinos in Indonesia, the sense of urgency conveyed at the rhino meeting, and a probable plan on how the Minnesota Zoo could go about meeting these needs was brought to their Board of Directors for consideration.

Why would the Minnesota Zoo concern itself with a conservation dilemma located half a globe away? It is because this outreach program is a natural extension of the Zoo's conservation policy, which pledges to "support the preservation and restoration of endangered species natural habitats."

Ujung Kulon was a perfect choice for us. In addition to the critically endangered Javan rhino, this national park provides refuge for several threatened wildlife species displayed in the Minnesota Zoo's premiere exhibit, the Asian Tropics. Most compelling, this important area of biological diversity is in clear need of support.

Not surprisingly, the Javan rhino has been chosen as the official symbol for Ujung Kulon National Park. But efforts mounted to protect the Javan rhino and its habitat will do much more than safeguard a living symbol of this wilderness; they will help preserve one of the most diverse ecosystems in the world.

The Minnesota Zoo's Adopt-A-Park program officially began in September 1990 when the Zoo entered into a formal agreement with Indonesia's PHPA to work together to protect the ecological stability of Ujung Kulon National Park, and thus ensure the long-term survival of the Javan rhino.

Several features of the "Adopt-A-Park" program are worth mentioning:

• The program is based on a long-term commitment to support *in situ* actions, and is fueled by developing trust and sharing common goals with our Indonesian hosts.

• It emphasizes a "grass-roots" approach to give financial support directly to Park programs. The funds have no administrative overhead attached to them.

• Costs are modest, yet the program is having an immediate impact all of which feeds back to our Zoo, our Asian Tropics exhibit, and our graphical interpretation of what conservation means to us and what we tell our visitors.

• The program is not linked to bringing animals back to the Minnesota Zoo in return for our support. Rather, we believe the value of being recognized as a protector of biological diversity, not a collector of it, is priceless.

Reflecting the most urgent needs of the Park, the Zoo's first year goal was to assist PHPA in purchasing field communication and transportation equipment so that staff could more effectively guard against poaching. Next on the agenda is the development of education materials suitable for use in a conservation outreach program both for the Javanese people living on the borders of the Park and the 3,000 international tourists who visit Ujung Kulon each year. Future goals will be identified in cooperation with PHPA.

In one short year, I have presented the idea developed here - that all zoos, regardless of its size or budget, may adopt their own protected area of choice, be it here with Asian rhinos, or anywhere else where help is needed - which has been presented at three national conferences in North America, an international meeting only last week and now here. It has caught the attention of other zoo directors, and I believe that more parks will be adopted in the near future.

I would like to end by taking this opportunity to set the record straight. Zoos are often portrayed as having no other interest in wild animals than putting them in cages. This is incorrect. Zoos are full of people who have dedicated their lives to animals, and these people share as strong a bond to wild areas as anyone else in this room. Zoos are already involved with *in situ* conservation programs around the globe. Several are ongoing right here in Indonesia. We intend to expand our commitment because we too are concerned with the wild areas from where our animals originate. I submit that if we all work together, rather than conspire to undermine our mutual commitments, we will be much more effective.

Secondly, the suggestion that zoos are not contributing enough to *in situ* conservation, based on their multi-million dollar a year budgets is derisive and counterproductive. North American zoos have over 100 million visitors a year, and they do have a primary responsibility to educate and entertain our paying customers. If we do our job well, we have extra funds that can be dedicated to *in situ* conservation. I challenge any organization to represent fairly, what they spend on administration versus what they spend in the field. I only ask that you keep this aspect in perspective.

This report was submitted by Ronald L. Tilson, Director of Conservation, Minnesota Zoo, Apple Valley, MN 55124, USA.

Invertebrate Working Group Report

Background

Two regional invertebrate groups have forced to address the need for a coordinated approach to invertebrate captive management. These are the Invertebrate Working Group (National Federation of Zoological Gardens of Great Britain and Ireland) formed in January 1987 and the Invertebrate Taxon Advisory Group (American Association of Zoological Parks and Aquariums) formed in September 1990. Shortly after the formation of the second group, Dr. Ulie Seal, Chairman CBSG, granted a request from the two groups for the formation a CBSG Invertebrate Group.

Developmental Strategy

A core group of invertebrate specialists will be recruited from the existing membership of CBSG, then strengthened with experts and specialists outside CBSG. It is expected that the CBSG Invertebrate Group will initially consist of about twelve members. The group will be coordinated by several co-chairs, each representing a major regional group, and allowing at least one co-chair present at annual CBSG meetings. Currently there are acting chairpersons for the North American and European regions and a need to identify two co-chairs from the Australasian region and other regions as they organize.

Objectives

The CBSG Invertebrate Group will provide another dimension to the invertebrate conservation work performed by the SSC Specialist Groups. The objectives outlined below will give a global perspective to invertebrate captive management and conservation.

Communication

1) Promote formation of regional groups for invertebrate captive management and conservation.

2) Serve as a communication forum for regional representatives.

3) Network with SSC Invertebrate Specialist Groups, the Invertebrate Task Force, and other invertebrate management/conservation organizations.

Education

1) Promote global awareness of the vital ecological roles played by invertebrates, and particularly the need to conserve invertebrates as important natural resources.

2) Support the use of invertebrates as exhibit animals in zoos and aquariums, and as such, encourage the use of invertebrates as educational tools.

Research

1) Encourage research relating captive husbandry to conservation programs.

2) Promote development of new or improved captive husbandry techniques.

3) Encourage scientific alternatives, i.e. cryopreservation.

Conservation

1) Coordinate global conservation efforts directed at specific regions.

2) Identify and develop flagship species for reintroduction or restocking programs of zoo-based conservation efforts.

3) Promote habitat preservation and *in situ* species conservation by using flagship and umbrella species as a focus for conservation programs.

For further information please contact: David G. Hughes, Glasgow Zoo, Tel: 44-41-771-1185, Fax: 44-41-771-2615, or Randy C. Morgan, Cincinnati Zoo, Tel: 513-281-4701, Fax: 513-281-0634

Invertebrate Working Group Meeting - Singapore

Establishing new regional invertebrate groups:

The most important priority task of the Invertebrate Group at this conference was to establish new regional Invertebrate Groups under the auspices of their Zoological Associations. The intention is that these new groups will follow a structure and working pattern similar to the existing regional groups. It was understood that a regional group covering Australasia is very near to being realized. The Melbourne Zoo has established a linkage with Papua New Guinea via the Research and Conservation Foundation (NGO) which has promising potential for furthering invertebrate conservation in that area.

Japan

Dr. Itaru Uchida has agreed to assess the possibility of forming a Japanese regional Invertebrate Group. The strong degree of general invertebrate interest in Japan should help in the task of forming such a group.

Southeast Asia

It was suggested that Sim Siang Huat, curator (zoology) of Singapore Zoological Gardens, would be an ideal person to establish an Invertebrate Group for the Southeast Asian region. Unfortunately, Sim was not present to be formally asked, but it was agreed to approach him before the end of the conference.

South America

The feasibility of establishing an invertebrate group for the South American region was discussed. It was thought that there are insufficiently known invertebrate people locally to form such a group. It was suggested that the present Taxon Advisory Group extend its area of responsibility into South America, thus encapsulating the few invertebrate people based in South America.

Africa

The general feeling was that the same situation existed in Africa as for South America. However, every effort should be made to locate invertebrate people working in this major region. It is known that there exists an insect conservation group (coordinated by Steven Chaun, University of Pretoria) which appears to be actively engaged in a comprehensive range of invertebrate conservation measures. This group should be contacted as part of the effort to locate invertebrate people working throughout this region.

Recommendations:

The need for an enlarged directory

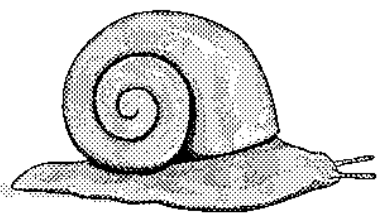
The opinion of the working group was that CBSG IG is an important rallying flag, whose greatest value at present lies in determining just who and what institutions are engaged (or have the potential to become engaged) in the kind of invertebrate work of concern to the CBSG. To this end, it was proposed that the regional co-chairs should expand their efforts to contact as broad a range of people/institutions involved with invertebrate work in their region. Such a search should include museums, universities, biological control organizations, hatcheries, tropical medical research centers, and other areas not immediately associated with conservation. There are tremendous skills residing in these areas that can be tapped by the Invertebrate Group. Unless we locate and cross-fertilize with such people, we shall suffer from unacceptably low levels of people/skills base. At present, there are too few people to allow the formation of the necessary specialized propagation groups.

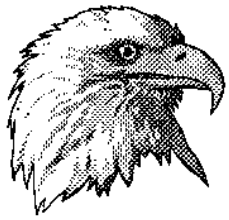
It was the unanimous opinion of the working group that because of the huge and diverse fields that CBSG IG has to cover, it is essential that the group aim to establish specialist propagation groups (marine, fresh water, etc.), as soon as sufficient people/skills are incorporated into the group. We consider the CBSG IG to be in full fact- and people-finding mode, a most valuable and urgent task.

An invertebrate database

Other than the CERCI, an invertebrate management database system which is running the *Partula* snail propagation programme, there is no database system available to meet the complex requirements such as the *Partula* program demands. As the number of invertebrate breeding program increase, so will the need for such a database to be more widely available.

This report was submitted by Paul Pearce-Kelly.





Report of the Avian Advisory Group

Population and Habitat Viability Assessments

The CBSG Avian Advisory Group endorses and encourages a Population and Habitat Viability Assessments (PHVA) for native Hawaiian birds. Other PHVA endorsements include white-winged wood duck, nene, New Zealand penguins and Edward's pheasant, including an upgrade of the Captive Action Plan for this species. The Avian Advisory Group will encourage more communication between the World Pheasant Association and CBSG. A PHVA for the Spix's macaw is also endorsed, and the initiation of conservation action planning for psittacines is applauded.

Captive Action Plans

Captive Action Plan Workshops for Falconiformes and for Psittacines are planned for Spring 1992. It is noted that for Rallidae, avicultural knowledge is extensive and captive propagation and management are realistic tools. However, there is little hope that a significant number of rail species will become incorporated into zoo collections in spite of the number of threatened species. Other applications for captive techniques could be important, however. The information should be made available to those interested in conservation of this group, especially at the local level. The rails would be a good candidate for a Conservation Action Plan.

It is noted that the Columbiformes merit a Captive Action Plan. There is reasonably good avicultural expertise available for this group and many threatened island forms. Touracos are noted as another group of future concern.

General Issues

The Avian Advisory Group has prepared priorities and recommendations for captive breeding of birds of Madagascar. There was considerable discussion that there had been little analysis of whether or not *any* captive breeding of Madagascar species, especially outside programs based in Madagascar, was necessary or advisable. This question was referred back to the Madagascar Faunal Interest Group. The Avian Advisory Group recognizes a necessity for establishing accepted guidelines for avian introductions and reintroductions.

It is noted that an assessment of captive spaces is useful and needed for planning long range propagation programs. Software for collecting data on captive spaces is being developed by the AAZPA avian group.

This report was submitted by Steve Wylie, Chair, CBSG Avian Advisory Group.

CBSG Fish Working Group Report

The focus of the majority of the efforts by aquarium facilities has been the need to manage captive populations of threatened freshwater fish species or taxons. In Europe, the EEC will soon pass the Fauna and Flora Habitat Protection Act to identify the species and habitats needing attention. Therefore, the European Union of Aquarium Curators will focus on the European freshwater fish species identified as in critical condition and needing captive propagation.

In Japan, the Japanese zoo and aquarium association has designated 10 freshwater fish species plus the Asian arawana for priority captive propagation and one amphibian species, the Japanese giant salamander.

In the U.S., an AAZPA freshwater fish TAG met in San Diego recently. Initiatives identified as necessary at the last two CBSG meetings were discussed. One of these, the Lake Victoria cichlid studbook was discussed as documented by materials submitted by Les Kaufman of the New England Aquarium and included in the briefing documents.

The Desert Fishes program activities focusing on the threatened freshwater fauna of the southwest U.S. and Mexico was presented. Fourteen U.S. zoological institutions (zoo and aquarium) are participating and cooperating with the U.S. Fish and Wildlife and the Autonomous University of Nuevo Lion in Monterrey, Mexico. This effort now focuses on 22 species currently being cooperatively bred and managed.

Mr. Dan Morino of the Cleveland Metro Zoo and Aquarium has initiated efforts to develop an aquarium based *ex-situ* breeding program for the Australian lungfish in conjunction and collaboration with the University of Queensland and their fisheries biologists. Toward this end, a special symposium was held in Cleveland earlier this year and Mr. Morino traveled to Australia to study original materials and meet with Australian ichthyologists in Queensland in September. A report will follow on his findings and recommendations.

This report was submitted by Louis Garibaldi,New York Aquarium, Itaru Uchida, Nagoya Port Aquarium, Jurgen Lange, Berlin Zu-Aquarium, and Paul van den Sande, Royal Zoological Society of Antwerp.

Report from CBSG, Herpetology - Australasia

Background

Although attempts to promote CBSG and attract participants have been underway for 18 months, CBSG (Herpetology - Australasia) to date is essentially the Australasian Herp Taxon Advisory Group (Herp TAG). Herp TAG was established in April 1990 and has since met in October 1990, April 1991 and July 1991. Herp TAG is a component of the Australasian Species Management Program (ASMP).

Goals

The aim of Herp TAG is to encourage the development of a regional collection, comprising individual collections, for the effective and ongoing cooperative management of captive herps (reptiles and amphibians) in Australasia. This includes native and non-native forms. Where appropriate, particular attention will be given to the co-operative maintenance and breeding of rare, threatened or poorly-known species, and species from the Australasian-Indomalayan-Oceanian realms.

Participating Institutions

Australia
Adelaide Zoo, South Australia
Australian Arid Zone Reptile Display, Alice Springs, Northern Territory
Australian Reptile Park, Gosford, New South Wales
Ballarat Reptile & Fauna Park, Victoria
Bowman Park Trust, Crystal Brook, South Australia
Bredl's Wonderworld of Wildlife, Renmark, South Australia
Healesville Sanctuary, Victoria
Lone Pine Sanctuary, Queensland
Perth Zoo, Western Australia
Queensland Reptile & Fauna Park, Beerwah, Queensland
Royal Melbourne Zoo, Victoria
Taronga Zoo, New South Wales
Territory Wildlife Park, Berry Springs, Northern Territory

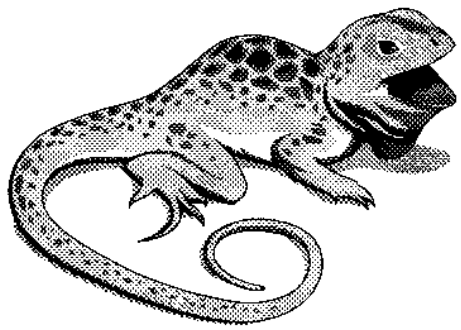
New Zealand
Auckland Zoo
Orana Park Wildlife Trust, Christchurch
Otorohanga Zoological Society
Ti Point Zoo
Wellington Zoo

Status of Australasian Taxa

The status of most Australian taxa is poorly known. To redress this situation, data is being collated for a Reptile Action Plan, which is due for completion in 1992. A national survey of frog populations indicates that 45 species have declined in the last five years.

Once the results of both these initiatives are available, the application of captive breeding will be examined. The organizers of both undertakings are kept appraised of Herp TAG activities, and three members of Herp TAG are now also members of the Australasian Amphibian and Reptile Specialist Group.

In New Zealand, the Department of Conservation (DoC) has developed Draft Management Plans for Tuatara (*Sphenodon spp.*), robust skink (*Cyclodina alani*), Whitaker's skink (*C. whitakeri*), Otago skink (*Leiolopisma otagense*) and grand skink



(*L. grande*). All have captive management components. A further 12 taxa have been designated by DoC as requiring urgent, short-term management.

The status of most Asian and Oceanian taxa is unknown. However, copies of Herp TAG reports to herpetologists in Papua New Guinea and Hawaii, as well as others with knowledge of the region, will help to raise awareness of Herp TAG/CBSG. The value of captive breeding should also be highlighted in the Australasian region through the possibility of Australian zoos working with Romer's tree frog (*Philautus romeri*), following a request from WWF Hong Kong.

Regional Australasian Planning/Management Criteria

ASMP Categorization Criteria:

Category 4: Either common in the wild in the region, common in captivity, kept by only one zoo, or so rare in captivity as to make management plans superfluous. Census species.

Category 3: Either not common in the wild in the region, or difficult or expensive to acquire. Monitored species.

Category 2: Threatened, international studbook or certain umbrella (World Heritage) species. Coordinated management via Species Management Plans.

Category 1: Same as for Category 2, but management includes a program of reintroduction.

Regional Prioritization Criteria:

1. Biogeographical significance for Australasia
2. Current and anticipated captive space available; adequate facilities
3. Current captive population size and composition
4. Adaptability to captive husbandry and breeding
5. Status in the wild
6. Sufficient number of founders (of known provenance) available
7. Usefulness as a "flagship" species
8. Educational value
9. Phylogenetic uniqueness
10. Significant interactions with or relationship to other taxa
11. Cultural significance; scientific significance
12. Potential for successful reintroduction
13. Articulation with other regional or international action plans

Priority Taxa

Very few Australian reptile species are currently listed as threatened or rare. The aforementioned Action Plan will clarify this situation. At least in the meantime, it is appropriate to direct attention to a number of taxa which either have poorly-known life histories or have poorly-documented husbandry/captive breeding requirements.

Short-term taxa have been designated if they are: 1) rare or threatened in the wild; 2) of high conservation, education, or scientific value; or 3) have poorly-known life histories. For the short-term taxa, species coordinators have been designated to obtain and collate data, and prepare recommendations. These taxa are:

Alligator Snapping Tortoise (*Macroclemmys temmincki*)
Galapagos Giant Tortoise (*Geochelone elephantopus*)
Aldabran Giant Tortoise (*G. gigantea*)
Spur-thighed Tortoise (*Testudo graeca*)
Hermann's Tortoise (*T. hermanni*)
Tuatara (*Sphenodon spp.*)
New Zealand Geckos:
Knob-tailed Geckos (*Nephrurus spp.*)
Fijian Iguanas (*Brachylophus spp.*)
New Zealand Skinks (*C. alani, C. whitakeri, L. grande, L. otagense*)
Gila Monster (*Heloderma suspectum*)
Australian Monitors (*Varanus spp.*)
Woma (*Aspidites ramsayi*)
Green Python (*Chondropython viridis*)
Eastern Diamondback Rattlesnake (*Crotalus adamanteus*)
Also all native frog species, except for the larger hybrids, were also designated as a group of special concern.

A further 21 long-term taxa have been designated for coordinated attention once imported or more widely available. The following four Threatened or Vulnerable species are also the subject of collaborative programs involving individual Australian zoos:

Western Swamp Tortoise (*Pseudemydura umbrina*)
Striped Legless Lizard (*Delma impar*)
Broad-headed Snake (*Hoplocephalus bungaroides*)
Spotted Tree Frog (*Litoria spenceri*)

Involvement of Private Herpetologists

The potential importance of private herpetologists to the conservation of native herps was recognized early. Hence, a representative of the Australasian Affiliation of Herpetological Societies (AAHS) was invited, and has since joined Herp TAG.

A second step is the distribution of anonymous surveys of private herpetological holdings and breedings, through herpetological societies in Queensland, New South Wales, the Australian Capital Territory, Victoria, South Australia, and New Zealand. Regardless of the outcome of this initiative, the Herp TAG has the results of a similar survey carried out by the Australian Herpetological Society. The aims of this development are to

quantify the numbers and diversity of native species being held by the private herpetological community, as well as the level of captive breeding expertise.

Other Issues

• Rationalization of collections: Herp TAG is a forum for assisting zoos in the Australasian region to rationalize their collections, through appropriate deletion of unwanted stock, pairing single specimens, etc.

• Antivenom: addressing importation and usage difficulties.

• Newsletter: Herp TAG is establishing a newsletter to assist with communication among members.

• Vertebrate Pests Committee (VPC): it is essential that Herp TAG has a good relationship with VPC so that our forward planning and importation requests are not retarded.

• Collaborative projects: a list of herp projects involving Australasian and external agencies has been developed to assist our future suggestions for involvement in broad-based captive breeding programs.

Future Activities

Prior to the next Herp TAG meeting in early December 1991, the following will be developed:

1) A comprehensive submission to VPC outlining the directions our regional herp collection will take and the taxa we will seek to have re-categorized.

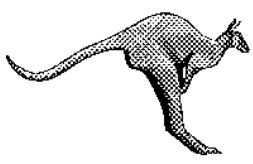
2) Action Plans for agreed Priority Taxa

3) Proposals to assist the Second World Congress of Herpetology to be held in Adelaide in 1993-94.

Recommendations of the Marsupial and Monotreme Working Group

The Marsupial and Monotreme Working Group held a brief meeting on 28 September 1991 at the CBSG Annual Meeting in Singapore. The following recommendations were made:

1) That members of the Action Plan Working Group convene in April at the 1992 ARAZPA Annual Conference in Currumbin, Queensland. It is strongly recommended that representatives from the EEP, SSP, SSCJ all be present to assist in strategic planning efforts. Requests have been made of Bert DeBoer (EEP) and Atushi Komori (SSCJ) to identify possible participants. It is also recommended that representatives of the IUCN Australian Marsupial Specialist Group be present to help identify priority species for captive breeding programs and to assess the potential contribution of captive propagation to conservation efforts. Tim Sullivan of IUCN will be looking into this matter, as will Dr. Barbara Porter, Conservation Coordinator of the Australasian Region.



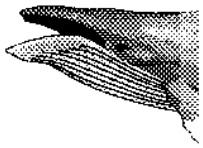
2) That the ASMP and SSCJ complete a survey of marsupial populations in their respective regions before the Action Planning Workshop in Currumbin. The AAZPA Marsupial and Monotreme TAG has completed such a survey for North American populations. There are 2,000-3,000 spaces for marsupials in North American zoos. There are about the same number of spaces available in all of Australasia. The AAZPA TAG is looking to Australasia and to the IUCN SSC to determine priorities for captive breeding programs. The vast majority of species (over 70%) being held in North America are common macropods. Only one endangered or threatened species is being held in numbers large enough to ensure viability, i.e., the Matschie's tree kangaroo.

3) That Marsupial and Monotreme Advisory Groups be formed by the EEP and SSCJ.

4) That communication between the SSP, EEP, SSCJ, and ASMP be improved. The inter-regional transfer of information on the husbandry and propagation of marsupials and monotremes is considered to be especially important. A special effort will be made to share information on veterinary issues.

This report was submitted by: Michael Hutchins, AAZPA, Barbara Porter, ASMP, and Graham Mitchell, Royal Melbourne Zoological Gardens.

Marine Mammal Working Group Report



Regional Coordination

European regional studbook for bottlenose dolphin (*Tursiops truncatus spp.*) has been presented to the Scientific Working Group in the EEC and is awaiting approval. Participation in the studbook is one of the conditions to be fulfilled to obtain import permits.

A North American Marine Mammal Taxon Advisory Group (TAG) has been established. The taxonomic scope of the animals to be addressed by the Marine Mammal TAG as well as responsibilities of the TAG, its functions, program plan and recommendations for program plan implementation are included in Appendix I of the CBSG 1991 briefing book.

Concerns

Of concern to the Marine Mammal Working Group is current pending legislation in Europe regarding the minimum criteria for holding of bottlenose dolphins in zoological facilities. The new legislation is expected to pass at the EEC meeting in

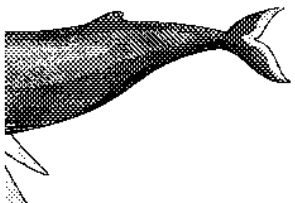
December. This legislation only covers *Tursiops* species. Other cetacea will be considered on a case by case basis.

Also of concern is the upcoming reauthorization of the Marine Mammal Protection Act in the United States that proposes numerous amendments which may be restrictive to the maintenance and conservation of marine mammals. For example, one of the proposed amendments will change the definition of "take" for permitting purposes to include moving animals from institution to institution. The approval of such moves would be subject to public comment; implications for such amendments are far-reaching.

The animal rights initiatives against cetaceans in captivity are not restricted to aquariums, but should be of concern to the entire captive community. The emotions and energies expended by special interest groups toward legislation that restrains keeping of these marine mammals will be extended to other high-profile terrestrial species in time.

One of the greatest concerns of the Marine Mammal Working Group is in regard to the Mediterranean monk seal, which is likely in an extinction vortex. The current population of the Western Mediterranean numbers less than 20. A number of political problems have interfered with an effective recovery effort for the species. There is a clear need for central organization of the Monk Seal Recovery Program with financial support obtained to build a rescue and breeding center within the species's natural range if the Mediterranean monk seal is to be kept from going extinct in the near future.

The Marine Mammal Working Group recognizes and commends the current activities of groups working toward the recovery of the Mediterranean monk seal. The current process to develop an effective recovery program for the Mediterranean monk seal should be strengthened and speeded up as soon as possible. Without immediate action to ensure the implementation of an effective recovery program for the Mediterranean monk seal, it is likely the species will become extinct in the near future. A number of political problems have prevented the efficacy of current programs. It is the recommendation of the Marine Mammal Working Group that the Captive Breeding Specialist Group contact the European community, in particular the EEC, to urge organization of a joint meeting as soon as possible, with *all* participating countries of origin and interested parties, such as the IUCN/SSC Seal and Captive Breeding Specialist Groups, all governments of the Mediterranean countries, the Council of Europe, the Secretariat of the Barcelona Convention, and the EEC, to work toward immediate development of an centrally-coordinated, effective recovery effort for the Mediterranean monk seal. Further, we urge that efforts be made to interest the World Bank as well as the EEC in funding of rescue centers and survey work as well as survival operations.



Because freshwater dolphins face multiple threats to their wild populations and because captive husbandry techniques have not yet sufficiently been used to maintain and propagate fresh water dolphins, the Marine Mammal Working Group recommends that the CBSG seek expertise to make recommendations for captive conservation programs for freshwater cetaceans in conjunction with the Cetacean Specialist Group.

This report was submitted by Paul van den Sande and Sue Ellis-Joseph.

Rhino Working Group

At the 1991 CBSG Annual Meeting in Singapore 27-29 September 1991, a working group on rhinos convened to consider the further development of captive programs for these species at both regional and global levels. The Group reviewed a number of notable developments with rhino conservation programs involving the captive community:

1) The San Diego Rhino Conference which has intensified efforts to improve captive programs for rhinos.

2) The formal establishment of the International Black Rhino Foundation and the signature of its Memorandum of Agreement with Zimbabwe for a cooperative program on black rhino conservation. The International Black Rhino Foundation is a coalition of members of the zoo and wildlife ranch community in North America, Australia, and eventually other parts of the world under auspices of the Captive Breeding Specialist Group (CBSG) of the IUCN (The World Conservation Union). The cooperative program has both *in situ* and *ex situ* components.

- *In situ*, the Foundation will provide long-term helicopter support for the Department of National Parks and Wildlife of Zimbabwe where the largest populations of "black rhino survives because of the exceptional commitment and competency of the Department of National Parks and Wildlife Management in the Ministry of Environment and Tourism." This support will represent a commitment of between $ 1 and 2 million U.S.

- *Ex situ*, the Foundation will provide the umbrella and vehicle to reinforce the captive population of black rhino outside Zimbabwe as an additional and ultimate insurance for survival of this species. The purpose of the captive program will be as a reservoir of last resort to provide rhino for restoration to natural habitats in Zimbabwe, or elsewhere in the species range, if and when the need and opportunity develop. As provided by Zimbabwe's national conservation strategy for black rhino, under the new agreement 40 more animals will be translocated to captive facilities (both zoos and ranches) in North America and Australia. Each region will ultimately receive 20 animals from Zimbabwe. These animals will be managed and propagated by the organized captive breeding programs in North America and in Australia. In North America, this program is the Species Survival Plan (SSP) of the American Association of Zoological Parks and Aquariums (AAZPA). In Australia, this program is the Australasian Species Management Program (ASMP). These regional programs will be integrated into a global program

through the CBSG.

3) A Population and Habitat Viability Assessment (PHVA) Workshop for the Kenya black rhino metapopulation which will occur 2-5 November 1991.

4) Further progress on Sumatran rhino conservation programs:

5) Another Indonesian Rhino Conservation Workshop which occurred immediately after the CBSG Meeting in Singapore and has formulated a more extensive and revised conservation action plan for both the Sumatran and Javan rhino.

6) Development of a prototype Conservation Action Plan for the proposed Global Heritage Species Programme. A summary of the *ex situ* program is provided in Tables 1 & 2.

A recommendation from the Working Group is to convene a workshop to develop a Global Captive Action Plan for rhino as soon as possible. This action plan would include consideration of how the various regional programs would interact and combine to form truly global efforts. An important aspect might be establishment of target population sizes (i.e. how many rhino to ultimately try to maintain) on a global basis and in each of the regions. In addition to such *ex situ* activities, the global action plan would also consider how to more strategically develop and coordinate *in situ* conservation activities by zoos, especially financial support for field efforts. Attached are two preliminary tables to guide further thought toward these objectives (Tables 3 & 4).

Proposed participants for this workshop would be all international and regional studbook keepers and species coordinators for each of the rhino taxa, African and Asian. It is also considered important that representatives of the management authorities in major countries of origin of the various rhino be involved. The tentative proposal for the time and place for such a global action plan workshop is London 9-10 May immediately after the 6th World Conference on Breeding Endangered Species in Captivity.

Table 1. Summary of captive programs for the Sumatran Rhino; 1984-1991.

Country	Captured	Born	Imported	Exported	Died	Alive
P. Malaysia	2/9	0/1	1/0	0/2	2/2	1/6
Sabah	4/1	0/0	0/0	0/0	2/0	2/1
Indonesia	6/10	0/0	0/1	3/5	0/1	3/5
Thailand	0/0	0/0	0/1	0/0	0/1	0/0
U.K.	0/0	0/0	1/2	0/0	0/1	1/1
U.S.A.	0/0	0/0	1/3	0/0	0/0	1/3
Total	**12/20**	**0/1**	**3/7**	**3/7**	**4/5**	**8/16**

Table 2. Mortality summary by country of origin for the Sumatran Rhino.

Country	Captured	Died	% Mortality	Last Death
Indonesia	16	3	19	1987
P. Malaysia	11	4	36	1989
Sabah	5	2	40	1988
Total	**32**	**9**	**28**	

Table 3. Global and regional current and target populations for rhinos in captivity.

		World		Africa		Asia		Australasia		Europe		N. Amer		S. Amer	
Rhino Taxon	Wild Pop	Capt Pop	Capt Target	Capt Pop	Target Pop	Capt Pop	Target Pop	Capt Pop	Target Pop	Capt Pop	Target Pop	Capt Pop	Target Pop	Capt Pop	Target Pop
E. Black	600	160		?		35		2		52		70		1	
S. Black	2300	22		0		0		0		2		20		0	
SW Black	400	0		0		0		0		0		0		0	
N. White	28	10		0		0		0		6		4		0	
S. White	4700	550		16		152		14		206		122		40	
Ind./Nep.	1700	114		0		46		0		32		35		1	
Javan	<100	0		0		0		0		0		0		0	
W. Sumat	700	21		0		13		0		2		6		0	
E. Sumat	100	3		0		3		0		0		0		0	
All	**10628**	**880**		**16**		**249**		**16**		**300**		**257**		**42**	

Table 3. Strategic support of *in situ* protected areas for rhino by the global and regional captive communities.

Rhino Taxon	Number of Significant *in situ* Sanctuaries	Supported by Zoos from:					
		Africa	Asia	Australasia	Europe	N. America	S. America
E. Black	7				3	2+?	
S. Black	7			1		1+?	
SW Black	2						
N. White	1				1		
S. White	5						
Indian/Nepali	6					1	
Javan	6					1	
W. Sumatran	5						
E. Sumatran	4						
All Taxa	**40**						

CBSG Education and Training Report

Training Programs Summary

National

1. Wildlife Institute of India Training Programs: S.Walker. An overview of the training programs is listed in the September 1991 issue of *Zoo's Print*. A course outline is listed on pages 20-21. A six week course is being planned for November 1991.

2. AAZPA Conservation Academy: M.Hutchins. In February 1991, 20 individuals attended the first Conservation Academy session held at the St. Louis Zoo. The focus of Course 1 was to train persons on how to be a studbook keeper. Course 2 is currently begin designed and will instruct persons on how to manage an SSP. A $19,000 grant has been awarded for 1992 from the AAZPA Conservation Endowment Fund to support the development and implementation of these courses. In addition, an advanced training workshop is to be held at Front Royal (March) for the Small Population Management Advisory Group; to deal with captive breeding of endangered species.

Regional

1. The Association of Mesoamerican Zoo's (AMAZOO) Training Workshops: L.Calvo. Five courses for the rank and file have been offered, including directors, educators, curators, keepers, and masterplanning. During 1991 a course entitled Zoo Biology and Captive Breeding Management Training for Zoo Veterinarians and Curators was held. Later in the year a similar course for keepers was held, but on a more basic level.

International

1. National Zoo Training Programs: C. Wemmer. Courses have been offered twice yearly in the past. There are plans for courses to be taught in Columbia, China, and Argentina in 1992.

2. Jersey Wildlife Preservation Trust: J.Mallinson. An overview of the Jersey class offered on animal keeping and breeding is listed in the May, 1991 CBSG newsletter issue. Sessions are 10 or 16 weeks in duration. Jersey also offered the first international "Zoo Education and Interpretation Training Course" this past April-May, 1991. An overview can be found in the CBSG (Singapore) proceedings book.

Concerns and Considerations Discussed

1. Is evaluation a component of all training courses and how is it done?

2. How do you determine who or where training is needed?

3. Please create a list of training programs offered within the year and those planned for the next year at each meeting.

The CBSG newsletter is now disseminating notification and results of training programs, so a global network exists, to the English reading world. Persons are encouraged to submit the identification of training programs to the CBSG newsletter.

Education

Goal

Our goal is to establish an active international conservation education support committee within CBSG.

Objectives

1. Create an educational support core group consisting of L. Calvo (AMAZOO),S. Hage (Minnesota Zoo, USA),S. Walker (Zoo Outreach Organisation-India),P. Harvey (San Diego Zoo,USA),C. Wemmer (National Zoo, USA),P. Coffey (Jersey Zoo, Great Britain). Core members must be able to make a commitment to provide support for zoo/park conservation education programming globally within their geographic region. Support is defined as any one or more of the following:

- financial
- produce/provide resource materials
- host, design or teach training courses in conservation education
- travel to or send staff to assist *in situ* or *ex situ* programs
- actively correspond within their region

2. Develop a model for conservation education within a zoo

- resource manual (currently being created by Jersey Zoo and IZE)
- flow chart

3. Provide resource support (materials/staff)

- to obtain or produce materials, i.e. curriculum, poster
- to design programs
- for staff training in conservation education

4. Identify funding support to accomplish above listed objectives.

5. Establish a global conservation education network with identified individuals representing geographic regions

6. Identify committee member commitments for 1992. Example: Southeast Asia (S.Hage) develop *in-situ* conservation education program for Ujung Kulon National Park and conduct conservation education training program for Jakarta Zoo Education and Volunteer Departments in Indonesia. Example: India (S.Walker) Zoo Outreach Organization to develop Zoo Education materials in connection with making the regional Bengal tiger studbook and coordinated breeding program.

This report was submitted by Steve Hage, Minnesota Zoo.

Japan Red Data Book 1990

The Environment Agency of Japan published the Japan Red Data Book 1990, Volume 1 "Vertebrate Animals" in April 1991. This is the first comprehensive report on the present status of wildlife in Japan. The Environment Agency organized a special committee for the research, consisting of 72 specialists for wildlife research and more than 250 field workers and natural

scientists. The research work was conducted from 1986 to 1990. The classification of the degree of threat and definition of category are based on IUCN threat Category Definitions.

The research showed that nearly 20 percent of vertebrate animals are in a critical situation in Japan. The Environment Agency has already formed a plan to meet the situation and is putting it into practice.The primary threatened animals are:

Mammals
Japanese river otter - *Lutra nippon* (E)
Tsushima cat - *Felis euptilura* (E)
Iriomote cat - *Mayailurus iriomotensis* (E)
Bonin flying fox - *Pteropus pselaphon* (V)
Amami hare - *Pentalagus fulnessi* (V)
Tsushima marten - *Marts melampus tsuensis* (V)
Common (kuril) seal - *Phoca vitulina* (V)

Birds
Short tailed albatross - *Diomedea albatrus* (E)
White stork (east Asiatic subspecies) - *Ciconia ciconia boyciana* (E)
Japanese crested ibis - *Nipponia nippon* (E)
White-tailed sea eagle - *Haliaeetus albicilla* (E)
Golden eagle (subspecies) - *Aquila chryaetos japonica*-(E)

This report was submitted by Shiro Nakagawa, Tokyo Zoological Society, Japan.

Summary Table of Japan Red Data Book 1990

	Species/Subspecies	Extinct	Endangered	Vulnerable	Rare	Locally Threatened	TOTAL
Mammals	188	5	3	11	36	13	68
Birds	665	13	27	27	65	0	132
Reptiles	87	0	1	2	13	0	16
Amphibians	59	0	2	4	8	5	19
Fishes*	200	2	16	6	17	7	48
TOTAL	1199	20	49	50	13	25	283

*Freshwater

Captive Breeding, Rehabilitation, and Reintroduction of Endangered Species in India: A Status Report

During the first half of the present century, factors such as indiscriminate hunting, poaching, illegal trade, and human pressure on land collectively depleted wild animal populations to a very great extent. Since independence, the growing realization of the importance of environmental conservation in India has stalled this onslaught to some extent by the enactment of Wildlife Protection Act, 1972, creation of a vast network of national parks and sanctuaries, and creation of a separate Ministry of Environment and Forests. In 1983, the National Wildlife Action Plan was formulated which laid down objectives for the protection and management of wildlife. These objectives include *ex-situ* breeding facilities, wildlife education and interpretation, research and monitoring, rehabilitation and endangered and threatened species. A small directorate of wildlife education and research functioning under the Forest Research Institute and colleges was converted into a full-fledged institute, the Wildlife Institute of India, in 1986 for imparting training to personnel of protected areas and to conduct research in wildlife.

A long-term conservation project called Project Tiger was launched in April 1973 involving preservation of the tiger along with its prey and habitat. Project Tiger was initially started in seven protected areas. Gradually other protected areas were added. At present, it covers 19 protected areas. While the population of tigers has doubled during this period, it has also been successful in improving the habitat conditions of the areas under the project.

Concerned for the future to the Indian crocodile species, the government of India sought U.N. assistance in initiating a project for conservation/management work on all the three species of crocodiles: the Indian gharial (*Gavialis gangeticus*), the saltwater crocodile (*Crocodylus porosus*), and the Indian mugger (*Crocodylus palustris*). The project was launched first in Orissa for gharial in 1975 under the guidance of Dr H. R. Bustard, a U.N.D.P. expert. The suggested procedure was to collect all wild-laid eggs after identifying breeding individuals; hatch and rear them in captivity to a stage free from natural predation; and reintroduce these to suitable habitats. After Orissa, various other states such as Uttar Pradesh, Rajasthan, Andhra Pradesh, Tamil Nadu, West Bengal, Madhya Pradesh, and Gujarat actively participated in this project for conservation of crocodile species. While all these activities of crocodile conservation were going on, the Indian zoos also began captive breeding for the Indian

crocodiles. It was at the Nandankanan Zoo in Orissa where the first successful breeding of gharial was obtained anywhere in the world.

Within ten years, all the three crocodile species were completely saved and all suitable areas set aside as sanctuaries for crocodile release were rapidly filled up. A total of 879 gharials, 190 saltwater crocodiles, and 493 muggers were released in 19 restocking areas in the wild.

As recommended by the IUCN Asian Rhino Specialist Group and the Indian Board for Wildlife, a group of five Indian Rhinoceros was translocated from Assam - its present range - to its 1984 former range, Dudhwa, to improve the conservation status of the species. In order to increase the size of the reintroduced group and improve its genetic vigor, a further batch of four female rhinos from Chitwan National Park, Nepal was released in Dudhwa alongside the animals translocated earlier from Assam. These rhinos are being monitored by a scientist from the Wildlife Institute of India since 1987. The rhinos have not only settled down well but have successfully bred in the designated area of the Dudhwa National Park. The successful establishment of the Indian Rhinoceros in Dudhwa after an absence of rhinos from the area for about a hundred years is a cause for considerable satisfaction.

Similarly, a programme to rehabilitate/relocate a small population of the Indian lion from the over populated Gir National Park to a new home is also scheduled.

In the case of several species which are candidates for this type of rehabilitation, some elements of the programme already exist but they need integrating into a comprehensive breeding/release project which has the full support of united and concerned state governments. The brow-antlered deer or sangai is a case in point. The species in the wild is restricted to a 25-km^2 area known as Keibul Lamjao Park in Manipur. In 1960, the total population was estimated at 100. About this time, the Delhi Zoological Park obtained a pair from Manipur and later bred the species successfully. The Alipore Zoo Calcutta also obtained a pair during late 1950s. The two herds with different gene pools bred successfully in isolation and were distributed to various other zoos in India where also they have bred in good numbers.

The Government of India and the state government of Assam have proposed to reintroduce a few specimens from captive stock into the wild in Probitara sanctuary in Assam. Technical assistance and monitoring will be provided by the Wildlife Institute of India when the project begins.

The white-winged wood duck (*Cairina scutulata*) has been bred in captivity in Assam and at the Wildfowl Trust's headquarters at Slimbridge. Although the prime objective of the project is to reintroduce the captive stock into suitable areas of the Assam plains rain forests. This has not yet been achieved, in spite of the fact that by 1985 a sufficient number of birds had been bred for this purpose. The reason for the hold-up appears to be a lack of effective coordination between different agencies.

Musk deer (*Moschus moschiferus*) has been bred in captivity on a small scale in both Himachal Pradesh and Uttar Pradesh. The basic knowledge of captive breeding hence been established in addition to considerable knowledge on the biology of the species in the wild. There is, as yet, no extensive breeding programme for this rare Himalayan species, either for a reintroduction programme or as a farming operation in order to relieve pressure on wild populations. A research fellow of the Wildlife Institute of India is presently working in the Kedarnath Musk Deer Sanctuary to quantify habitat utilization by wild ungulates in the sanctuary and to assess the abundance and their distribution in the sanctuary.

Among the chelonians found in India, freshwater turtles are less known but over-exploitation as protein resources. The Wildlife Protection Act (1972) provides legal protection to only a few of the 30 species of freshwater turtles known in India. The lessons learned from the reintroduction of crocodilian species can be replicated in the case of turtles for rehabilitation in the wild. The Wildlife Institute has initiated a project of this nature recently. A preliminary survey of chelonians in captivity has already been started.

The history of zoos in India dates back 136 years when a private zoo was established in Calcutta in 1854. There are presently 210 captive wildlife facilities in India, including 105 zoos. Some of the Indian zoos have been successful in breeding some rare and endangered Indian species in captivity such as the tiger, Indian rhinoceros, Indian lion, Indian smooth otter, Indian bison, clouded leopard, snow leopard, binturong, wild ass, brow-antlered deer, swamp deer, and crocodiles. However, except in a very few cases, the efforts have been sporadic and inconsistent. The zoos in India suffer from various constraints such as paucity of financial resources, dearth of adequate and qualified staff, lack of cooperation and coordination, difficulty in procurement of animals, vaccines, drugs, equipment, multiplicity of authorities controlling various zoos, frequent change/transfer of staff, and consequent absence of any clear-cut policy, objective, standards, and guidelines.

The Government of India and the Indian Board for Wildlife have been duly concerned about the status of management and the condition of wild animals in captivity in the country. In order to suggest ways and means to mitigate the various handicaps in the management and development of zoos in the country, the Government of India entrusted the Wildlife Institute of India to take up a consultancy project. The main objectives of the project are :

1) To prepare a report on the status of zoos in the country with regard to their resources, constraints, and requirements for their management. This information would be maintained as part of the computerised database at the Wildlife Institute of India (WII). The information should therefore be as quantitative and factual as possible to act as baseline data.

2) To evolve a set of standards and guidelines laying down management criteria for the maintenance of wild animals in captivity.

3) To evaluate the facilities available for health care, disease control, and treatment of wild animals in captivity and

propose a model veterinary facility for zoos.

4) To develop guidelines for the preparation of master/ management plans and conceptual plans for zoos.

5) To make recommendations for achieving the objectives of captive breeding programmes as outlined in the National Wildlife Action Plan.

6) To develop guidelines for interpretative and educational programmes within the zoos.

7) To develop special training programmes for professional and technical levels of staff in the management of wild animals in captivity in general and captive breeding and interpretation in particular, and assist WII in the conduct of at least one training course in each of the two categories.

8) To evolve guidelines for conducting research on wild animals in captivity.

9) To suggest the structure, role, and function of the proposed central unit under the Government of India as a model agency for better management and development of zoos in the country.

The project is well on its way. A preliminary survey of zoos has been completed. Information from 60 zoos haven't been compiled and entered in a database, guidelines have been prepared, and the first course in zoo management for zoo directors was conducted in November, 1991 at the Nandankanan Biological Park which was highly appreciated by the participants. The second course for middle level zoo personnel was conducted in November, 1991 at the Wildlife Institute of India.

In order to improve coordination, cooperation, and communication, the Indian zoo directors have formed an association. In addition, the Government of India has now decided to form a Central Authority for zoos in India for providing guidelines and help in procuring medicines, animals, and equipment as well as acting as a coordinating agency for all Indian zoos. In view of this changing scenario, it is hoped that the zoos in India will start to play a significant role in conservation, captive breeding programmes, and research in near future.

Regional Coordination Report for India

Legislation

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

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

Indian Zoo Directors' Association

The Indian Zoo Directors' Association has been registered officially under the Government of Orissa State and will hold their first meeting at the time of the 6th All-Indian Zoo Directors' Conference which is to be held in Hyderabad. Projects for the Association will be planned and officers elected at this meeting.

Zoom Consultancy Project

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

Training

A two-week course in Zoo Management for In-service Zoo Personnel at the Director's level was held last November by the Wildlife Institute of India at Nandankanan Zoo. A ten-day Conservation Education course was held in early September at the Wildlife Institute of India which included zoo personnel as well as staff of protected areas. A six-week course in Zoo Management for in-service zoo personnel at the curatorial or supervisory level was conducted in November-December, 1991. The course will cover theoretical aspects at the institute located at Dehra Dun and practical aspects in a two-week-study tour covering four major north Indian zoological parks.

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

Conferences and Symposia

The Sixth Meeting of All-India Zoo Directors was held at Hyderabad Zoo 23-25 October 1991. A Workshop/Symposium entitled Perspectives in Zoo Management was hosted by the National Zoological Park and the Ministry of Environment 29-31 October 1991. An International Seminar on Veterinary Medicine in Wild and Captive Animals sponsored by the Indian Veterinary Association was held in Bangalore India on 8-12 November 1991. Special sessions devoted to zoo veterinary medicine were scheduled. The Indian Association of Zoo and Wildlife Veterinarians had their meeting at this time as well.

The Chamarajendra Zoological Gardens, Mysore will celebrate their Centinary in October of 1992 and has extended an invitation to the Captive Breeding Specialist Group to hold a Regional meeting in Mysore in connection with the 100th birthday of their zoo.

This report was submitted by J. H. Desai, WII.

Summary of the Third Trip to Mongolia of the Przewalski's horse Global Management Plan Working Group (GMPWG)

The third visit of the GMPWG resulted in further planning for a reintroduction of the takhi into the Gobi B ecosystem. Acting on behalf of the Mongolian Government, Minister of the State Committee for Environmental Control, Z. Batjargal nominated the takhi reintroduction program for World Bank funding under the new Global Environmental Facility program. Botanical surveys at the Gun tamga oasis are to begin immediately and will include collection of data through the winter period. The GMPWG steering committee was advised that a new National Park boundary seven km to the east of Gun tamga will be marked with posts and signs at one-km intervals in August, 1991.

However, several factors are impeding the progress of efforts to reintroduce the Przewalski's horse into its historic range in Mongolia. These include a national economic crisis of disastrous proportions, resulting in shortages of fuel and food. Additionally, the lack of experience of Mongolian organizations and officials with philosophical, organizational, and practical aspects of reintroduction programs has been a source of difficulty.

A major expenditure of time during the visit was devoted to discussions concerning the takhi project begun at Tachin tal by an agreement initiated before the change of government in 1990. At its first Steering Committee Meeting in Cologne, the GMPWG agreed to provide horses for the Tachin tal project in 1991. Six mares were identified for the transfer. However, the transfer of these horses to Mongolia did not take place because of four obstacles: 1) transportation for the takhi was not confirmed to the GMPWG by the foundation that was a signatory to the project initiated by the previous regime; 2) because booking confirmation for the animal transfers was not received, application for necessary transit permits could not go forward; 3) the Mongolian side did not provide information concerning veterinary testing and vaccination requirements for importation of the horses; and 4) no import permission was received from the Mongolian side and such specific permission is necessary in order for the GMPWG to legally export the horses.

A visit to Tachin tal on 21 July revealed that the site had indeed been prepared to include a 160-ha fenced enclosure and an acclimatization pen of several hectares in which barns were located and housing for project personnel had been erected at a cost of 680,000 tugriks. However, there is no water at the site. The small stream, Bijin Gol, that formerly ran through the site of the new enclosure no longer delivers water to the site. The village of Tachin tal has a cooperative enterprise for raising wheat that provides the major source of income and winter food for the inhabitants. The limited water storage that is available from the dam upstream from the village and the wheat fields provides essential irrigation for the crops upon which the villagers depend. A well was drilled at the enclosure site to a depth of 180 m but no water was found. Additionally, only a small portion of the 160-ha enclosure is suitable for grazing by horses. What grasses are available are coarse (e.g., *Stipa grandis*). Consequently, any horses placed in the enclosure at Tachin tal will have to be regularly and continuously provided with water and fodder. Areas adjacent to the enclosure are gravel desert characteristic of the Dzungarian Gobi. As a consequence of the complete unsuitability of Tachin tal for a true reintroduction project, the GMPWG steering committee informed the Mongolian authorities that it would not be possible to send horses to Tachin tal from SSP or EEP institutions and that the contract to bring Przewalski's horses to Tachin tal would have to be fulfilled solely by the signatory parties without influence from the GMPWG.

In contrast to the conditions at Tachin tal ,the oasis of Gun tamga, which lies 40 km to the south, has ample running water, protection from wind in the adjacent hills, and abundant plant biomass including a flora of 40 species of which at least seven are grasses. The Gun tamga stream flows west through a narrow pass between two hills which divides the available grazing and water into two large portions. This physical feature offers the opportunity to create an enclosure for takhis in the eastern portion of Gun tamga, while leaving the western portion available to populations of wild animals so that they can gain access from the northern southern and western portions of the Gobi B National Park. Sand gazelles (*Gazella subgutturosa*) and dziggetais (*Equus hemionus hemionus*) will immediately be able to utilize this area. Another smaller oasis only a few kilometers away, Gazuun bulag, offers additional water and grazing sites.

The GMPWG steering committee also visited the Hustain nuuru site, 100 km from Ulan Bator where Przewalski's horses are scheduled to be acclimatized in 1992. Two fences are under construction, each creating about a 40-ha enclosure. The actual construction details of the fencing are still under discussion. The posts are pine logs approximately 25 cm in diameter, extending 1.7 m above the ground at 5-m intervals. Electric fencing will be utilized in addition to chain link. Attempts will be made to exclude wolves with this fence. The entire release area at Hustain nuuru is said to be 40,000 ha (400 km^2). The Hustain nuuru site and the area surrounding it have considerable agricultural importance, although the nomadic pastoralists are no longer allowed inside the area. There are plans to translocate ibex (*Ibex sibirica*) and to protect the local populations of red deer (*Cervus elaphus*) and wild boar (*Sus scrofa*).

The potential for the Hustain nuuru area to serve as a true reintroduction site where a free-living, self-sustaining population of horses can exist without active human management is doubtful. The GMPWG steering committee was told that, to date, this project has not directly received Mongolian government funds.

The existence of three takhi projects in the Mongolian Peoples Republic (Tachin tal, Gun tamga, and Hustain nuuru)

has significant potential for causing confusion to the Mongolian People, to international conservation organizations, as well as funding agencies. The GMPWG steering committee considers that only Gun tamga is an appropriate site for a true reintroduction project and has agreed with the Mongolian Commission for the Reintroduction of the Takhi to focus its efforts there.

As additional activities unfold in support of the takhi reintroduction at Gun tamga during the balance of 1991 and during 1992, site investigation and preparation will proceed. In the autumn of 1992, an international conference involving the GMPWG steering committee, its advisors, staff and Mongolian Takhi Commission members, as well as representatives of the Mongolian scientific community and government officials will meet to finalize the parameters for the enclosure at Gun tamga in preparation for the arrival of horses in 1993, if all necessary conditions are met.

Agreement on Project schedule for GMPWG-Takhi Commission

1991

- Botanical survey: description of species, abundance of species of Gun tamga and distribution at Gun tamga. One single master map should be used. Collection of samples
- Installation of posts for National Park Boundary
- Survey of Gun tamga region: use by domestic animals (species, numbers, dates)
- Survey of Gun tamga region: use by wild animals (species, numbers, date
- Climatological monitoring at Gun tamga: maximum/minimum temperature, precipitation; standing snow depth; wind direction and intensity; monitoring of water availability during periods of intense cold. Period of time that no flowing water is available because of freezing of stream
- Training of park wardens: public relations, education, enforcement, data collection
- Takhi project veterinarian learns English
- Training of takhi project personnel in Cologne
- Prepare project proposal with budget for submission to funding agencies. Documents needed from Minister: 1. Mongolian conservation policy (e.g. national laws or decrees pertaining to Red Book species; publication of Red Book. 2. All decrees and/or legislation concerning the National Park in the Gobi B zone. 3. Nomination for World Heritage status

1992

- Veterinarian to be trained on a six-month course in U.K, starting in June
- Hire a GMPWG project leader for Mongolia
- Evaluation at Gun tamga:
  1) Plant productivity/biomass
  2) Estimation of carrying capacity
  3) Preparing options for fencing location
  4) Training of warden/monitoring personnel. Some of these personnel to be sufficient educational background to be able to develop through training further appropriate biological skills.
- September: International group meeting in Mongolia to finalize fence location and construction details. GMPWG-steering committee, Mark Stanley Price, M. Woodford, P. Duncan, M. Stubbe, Takhi commission

1993

- Ship and construct fence
- Ship horses
- Begin animal behavior monitoring

This report was submitted by O. Ryder, W. Zimmermann, and J. Knowles, GMPWG Steering Committee.

A Note of Thanks...

Dear Friends,

Thank you all for your love and support. Your messages and gifts from all over the world have supported me mentally and spiritually. I have been totally unable to feel down or depressed for more than a few minutes at a time since this thing began.

I am halfway through chemotherapy, which I am tolerating well, and then I have five weeks of radiation therapy to follow. After both are through, they assure me that the big "CA" will be gone and the bone will heal and I'll be as good as new.

I am planning to be back with you all by sometime next summer. I hope you have a joyous and productive year in 1992. Bless you for sharing your concern and warmth with me; I have literally been buoyed up by you.

I love you all,

Marialice Seal

Meetings...

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

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

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

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

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

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

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

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

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

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

CBSG Publications

The below CBSG publications are available at a cost of $25.00 (U.S.) each:

Population Viability Analyses (PVA)

- Bali Mynah
- Kenya Black Rhino Metapopulation*
- Caribbean Parrots*
- Florida Panther
- Javan Rhino
- Key Deer
- Kirtland's Warbler*
- *Leontopithecus*
- Mexican Wolf*
- Pink Pigeon*
- Puerto Rican Parrot
- Tana River Primate Reserve*
- Waldrapp Ibis*
- Whooping Crane*

Captive Assessment and Management Plans (CAMP)

- Asian Hornbills
- Felids
- Parrots
- Primates
- Waterfowl

Other

- Disease & Captive Conservation of Threatened Species
- Subspecies, Populations, and Gene Flow: Florida Panther
- Genome Resource Banking for Wild Species Conservation
- Aridland Antelopes Conservation Plan
- Wild Cattle Symposium Proceedings
- Przewalski's Horse Draft Global Conservation Plan

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11-13 NOVEMBER 1992

OAKLAND, CALIFORNIA, U.S.A.

This international conference and working meeting will focus upon:

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Return the below registration form to: Peregrine L. Wolff, DVM, Director of Animal Health, c/o CBSG, 12101 Johnny Cake Ridge Road, Apple Valley, MN 55124 USA, Tel: (612) 431-9361, Fax: (612) 432-2757.

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CBSG Activities Schedule

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

January	
3 - 5	Palm Desert: Antelope CA
7 - 9	MN: Kirkland's Warbler PVA
10 - 11	Apple Valley: CBSG/IUDZG/GCCN
13 - 18	Cambridge: Parrots CBAP
20 - 21	Cambridge:Kyoto Criteria & Elephants & Mace/Lande
February	
5 - 7	Aruba: Aruba Island Rattlesnake PVA
6 - 8	Ventura: Sea Otter Recovery Team Mtg
10 - 16	Caracas: Parks Congress - Workshop Primates CBAP Review & Primate PVA
March	
18 - 19	Front Royal: Cheetah Husbandry Manual
20 - 22	Front Royal: Felid TAG
23 - 24	Front Royal: Tiger SSP
26	Illinois: Univ/Urbana Lecture
April	
5 - 10	Australia: ARAZPA, CBSG Regional, Marsupial GAP New Zealand: Plant PHVA
21 - 23	Ohio: Karner Blue Butterfly PHVA
24 - 28	Houston: Bird Curators
27 - 30	Morocco: Rabat Zoo - Waldrapp Ibis PHVA
May	
4 - 6	Jersey: 6th International Cong. Breeding End. Sp. Captivity
7	Jersey: CBSG mtg
9 - 10	London: Rhino CA
15 - 17	Fossil Rim: Global Canid CAMP
June	
12 - 14	Phoenix: Conservation Biology
21 - 29	Zimbabwe: Pan African Zoos
July	
5 - 8	Edinburgh: EEP/CBSG Regional Mtg
9 - 10	Edinburgh: Global Tiger Mtg.
August	
9 - 15	Calgary: Cranes CBAP and PVA Work shop

Annual CBSG Meeting & Reptile CAMP

The Annual CBSG Meeting will be held 4-6 September 1992, in Vancouver, Canada. A Reptile CAMP will preceed the Annual Meeting. The conference hotel is: Hotel Vancouver, 900 West Georgia Street, Vancouver, British Columbia, CANADA V6C 2W6, Telephone: 604-684-3137, Fax: 604-662-1937, Telex: 04-51280. Conference room rates are: single $150, twin or double $170; adding a third person $25. Registration information will be mailed to CBSG members by March. Registration information will be printed in the next issue of CBSG News or will be available after 1 March 1 from the CBSG Office.

Publications...

Management Guidelines for the Welfare of Zoo Animals

The Federation of Zoological Gardens of Great Britain and Ireland have announced the publication of two "Management Guidelines for the Welfare of Zoo Animals" for the giraffe and for ratites. The Guidelines are first in a series and are produced on a non-profit basis to gather widely-scattered data, both published and unpublished, in a single, cohesive publication.

The Guidelines are divided into three sections. The first section provides concise information concerning the biology of the species including a review of field data. The second section, entitled "Management in Captivity", covers enclosures, feeding, social structure, breeding, population management, handling, and legislation. The third section lists references and gives recommended readings.

These Guidelines are available from The Federation of Zoological Gardens, Regent's Park, London NW1 4RY U.K. The giraffe Guidelines is available for £6.00 and the ratite Guidelines, £8.00.

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

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

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

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