

ENDANGERED SPECIES

Technical Bulletin Reprint

Wildland Management Center
School of Natural Resources
The University of Michigan

Front Royal: Focusing on Endangered Species Conservation

by Ann Harvey

The idea that zoos should serve as centers for conservation and breeding of endangered species is not a new one. Among the original goals of the Smithsonian Institution's National Zoological Park in Washington, D.C. when it opened in 1890 were the preservation of species faced with extinction, and public education about the plight of endangered wildlife. For many years, all of the National Zoo's recreational, educational, research, and conservation activities were concentrated on its 168 acres in the city. The limited space available, and the requirements of providing for public exhibition of the animals, placed obvious constraints on the zoo's capacity for breeding and raising endangered species. In the mid-1960s the zoo began to search for a site for a new breeding farm, where endangered animals would have ample living space and privacy and where research on behavior, reproductive physiology, and social organization could be conducted.

In 1973, when the U.S. Department of Agriculture decided to close its beef cattle research center near Front Royal, Virginia, the Smithsonian was first in line for the land. The site was ideal for the new National Zoo Conservation and Research Center: it was 80 miles from Washington, and in addition to 3,150 acres of rolling meadows and woodlands, the site contained complexes of barns and buildings that could be modified for small mammals, ungulates, and birds; offices and living quarters for staff, scientists, and students; miles of fences already in place; and a gravity flow water system bringing water from Blue Ridge mountain springs to the facility's center.

The first animals, scimitar-horned oryx and Pere David's deer, arrived in 1974. Since that time, 124 species of birds and mammals have lived at the Conservation and Research Center, some of them only briefly and others for the entire time. At present there are about 480 birds of 37 species there, and about 370 mammals of 18 species (numbers of animals change daily because of births and shipping animals to other zoos). The Center concentrates its efforts on animals that are endangered in the wild or whose captive populations are small and unstable. Cooperation between zoos is important to the success of the Conservation and Research Center—many zoos loan animals temporarily to the Center to help maintain genetic diversity in the captive stock. The Center participates in the Species Survival Plan of the American Association of Zoological Parks and Aquariums, keeping careful records of the pedigrees of each animal born there. This is critical to the long-term health of small captive populations.

One of the Center's important roles is supplier of captive-bred animals to other zoos. For example, because the Center has extensive facilities for incubating eggs and raising the young, it can hatch eggs produced by birds at the National Zoo and other zoos, and either return the young birds to the National Zoo or market them to other zoos. By serving as a supplier of birds needed for exhibits or breeding at other zoos, the Center takes some of the pressure off their limited facilities and increases captive populations without taking birds from the wild.

The Conservation and Research Center is involved in breeding several species of animals for possible reintroduction to the wild. One of these is the Bali mynah, an Indonesian bird threatened by collecting for the caged bird trade and more recently by habitat loss. The mynah is doing very well in captivity, and currently there are more than 100 of them at the Center. About 40 zoos are cooperating in the Bali

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Scimitar-horned oryx with young at the Conservation and Research Center, Front Royal, Virginia.

Photo by Jessie Cohen

Front Royal continued

mynah captive breeding program, according to Scott Derrickson, curator of birds at the Center. "We're hoping we can cooperate with Indonesia in setting up a breeding program there," says Derrickson, "and also to carry out reintroduction to bolster the wild population on Bali."

Another bird that the Conservation and Research Center hopes eventually to reintroduce into the wild is the Guam rail. Many native bird species on Guam have declined sharply in recent years because of predation by an introduced brown tree snake. The Guam white-eye and the Guam broadbill are already extinct. The Conservation and Research Center is cooperating with a number of zoos and the Guam Department of Aquatic and Wildlife Resources in the Guam Bird Rescue Project, a captive breeding and reintroduction program for the endangered native birds.

Dr. Eugene Morton of the National Zoo travelled to Guam in spring 1984 to capture four of the critically threat-

ened Guam rails and bring them back to the Front Royal facility. Since that time they have produced young, and more rails have been brought into captivity, both in the United States and in Guam. "We're breeding those successfully," says Derrickson, "and we're looking forward to being able to reintroduce those, possibly on a snake-free island near Guam." Similar efforts are underway for the Guam kingfisher, again in cooperation with several other zoos. A pair of the kingfishers at the Philadelphia zoo is sitting on eggs now, Derrickson says.

Perhaps the best known reintroduction program that the Conservation and Research Center is involved in is the golden lion tamarin project. Golden lion tamarins are active little primates with long silky fur, and they have been almost eliminated from their former range in the coastal rain forests of Brazil because of deforestation. Eighty-one golden lion tamarins have been born at the Conservation and Research Center since 1976. The National Zoo, in cooperation with the Brookfield Zoo, the World Wildlife Fund, and the Brazilian government, has returned captive-bred tamarins first to the Rio de Janeiro Primate Center, where they are taught to forage on their own for natural foods, and then to the Poco d'Anta Biological Reserve, one of the only two remaining areas of the tamarins' original habitat. The reintroduction is still in its very early stages, but the National Zoo reports that the reintroduced tamarins have produced their first young in the wild.

Research is a vital part of the Center's activities. Because of the Center's spacious pastures and facilities, animals can be kept in natural social groupings, providing opportunities for observation of social behavior not possible in most zoos. "Research goes hand-in-hand with developing good management programs that are based on sound decisions," says Larry Collins, curator of mammals at the Center. Work with clouded leopards, for example, has led to successful breeding of these solitary cats and production of 16 young at the Center. Zoos used to keep clouded leopards apart except when the female was in estrus, in keeping with procedures that had been successful for



Photo by Jessie Cohen

Golden lion tamarins

breeding other felines. But the clouded leopard males would attack the females when they were introduced.

"What we've done," says Collins, "is put together young compatible pairs. We put them together when they're a year or less old, and they rely on each other for companionship and they grow up together and essentially stay compatible that way. Then we separate them when the female gives birth. We have big screened areas where they can still stay in communication, see each other and smell each other. Then we reintroduce them when the cubs are weaned, and we haven't had any aggression between the males and the females. We watch the females with their cubs on closed circuit T.V. in the nest boxes, so that doesn't disturb them. So we work with kid gloves with them, and we're pretty well working out what you have to do if you want to breed clouded leopards consistently." The Center's most recent success has been the birth of a marsupial tiger quoll, the first born outside of Australia.

The Conservation and Research Center supports the work of many visiting scientists and students who work with staff scientists on ongoing

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A forum for information
exchange on
endangered species from

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Captive Breeding Proposed For Dwindling Sumatran Rhino Population

by Gretchen Messer

It is an unfortunate statement that the one aspect that the five species of rhinoceroses share is their endangerment. In fact, the Sumatran rhino from Malaysia is among the world's most endangered mammals. There are small, scattered populations of the Sumatran rhino in Burma, Thailand, Sabah, and West Malaysia. A rough estimate of the entire population predicts that there are less than 300 individuals in the wild. Of these few animals, between 30 and 50 of them are found on the Leuser Reserve in Sumatra, the site of the largest and most important Sumatran rhino population.

Although there have been as many as 55 Sumatran rhinos exhibited in zoos, the majority were alive at the turn of the century. Today the Malakka Zoo in Malaysia exhibits the only Sumatran rhino in captivity. The status of the Sumatran rhino population and its apparent susceptibility to the continued destruction of its habitat in Malaysia has attracted the attention of the International Union for the Conservation of Nature and Natural Resources (IUCN) and the American Association of Zoological Parks and Aquariums (AAZPA).

The Sumatran rhino has been recognized and listed as an endangered species by the IUCN. In addition, the IUCN has outlined a recovery plan for its future survival. Unfortunately, due to political, economic, and other restraining factors, little work has actually been done. The AAZPA, which is also interested in the population status of the rhino, has recently become involved in implementing a Species Survival Plan (SSP). The coordinator of this project is Dr. Warren Thomas of the Los Angeles Zoo in California.

A consortium of eleven North American zoos is working with the Malaysian government towards the conservation of the Sumatran rhino. The primary zoos involved — Los Angeles, Cincinnati, San Diego and the Bronx—provide much of the funding and will house any of the rhinos

which are captured for a captive breeding population. The secondary zoos — Miami, Fort Worth, Dallas, Washington, Philadelphia, Brookfield and Toronto—are also funding the SSP but will not receive any of the captured rhinos.

This consortium has established two primary goals for conserving the Sumatran rhino population: to preserve and protect the Sumatran rhino in its natural habitat, and to capture a few individuals to establish a captive breeding population. Captured individuals would be taken from those habitats which are the most threatened or susceptible to destruction. This proposal has the support of the American government and limitations on the trade of endangered species to the U.S. have been expanded to allow the importation of these animals. At this time, the Malaysian government appears reluctant to move ahead with the program. Their responses to the American directors have been considerably delayed, jeopardizing the program.

Today the Malakka Zoo in Malaysia exhibits the only Sumatran rhino in captivity.

The plan proposes a three-year trapping period in which Sumatran rhinos could be captured from their populations in Sabah and Malaysia. Two or three captured pairs would be kept at the Malakka Zoo. The plan optimistically suggests the capture of 8-12 pairs, which would be established in the four primary American zoos. Ultimately, enough rhinos would be captured to create a "semi-wild gene pool," according to Dr. Thomas, which could be maintained on a reserve. By breeding those rhinos kept in zoos, a

self-sustaining population could be established in captivity, and the possibilities of re-introducing them to the wild could be explored. An important benefit of capturing the animals is the scientific information, such as population and behavioral data, that could be gathered in the field.

Unfortunately, the optimism of the SSP allows many important facts to be overlooked: captive breeding populations are hindered by a narrow genetic base; there is a limited possibility of actually collecting up to 24 individual; and captive breeding may not offer the most protection necessary for the species.

Dr. Warren Thomas does not believe that a breeding population of 12 pairs dangerously narrows the genetic base. However, 12 pairs represents the maximum number of Sumatran rhinos to be captured. The fact that there are fewer than 300 individuals dispersed throughout a number of populations further reduces the possibility of capturing this many, which represents more than 8% of the total population. How the genetic diversity will be affected if only half the number are collected, or if only five males are collected is not clear and needs to be considered.

Very little field information about the Sumatran rhino is available. In fact, much of the information has been extrapolated from the life histories of the better studied black and northern white rhinos. There is also a lack of experience in capturing this species. The concern lies not with the ability of the team members, consisting of local Malaysians, to find the animals in the wild, a difficult task in itself, but with the trapping and transportation techniques. The more standard techniques for capturing the northern white rhino may be used, but the difference between the species leaves much uncertainty. Tranquilizer dosages, relatively unknown for the Sumatran rhino, must be determined with extreme care if accidental deaths are to be avoided.

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Rhino continued

Lastly, it has been recognized that captive populations are but a back up for the preservation of endangered species in their natural habitat. Captive breeding is largely a last-ditch method for saving a species from extinction. The fundamental need for the protection of native habitat is not diminished by captive propagation efforts.

The AAZPA should be commended for their interest and commitment to the Sumatran rhino SSP. The issues discussed above are not criticisms of their work; rather, they are indicators of the difficult decisions which need to be carefully evaluated as efforts to save the Sumatran rhino continue in the future.

Gretchen Messer recently completed her undergraduate degree at the School of Natural Resources where she has taken several courses in endangered species policy and conservation.

Front Royal continued

research projects. Every summer the Center hosts a several-month Wildlife Conservation and Management Training Course for conservation professionals from developing countries, providing training in such techniques as radio telemetry and trapping. The Center's property supports healthy populations of skunks, deer, raccoons, and other animals, some of which are used in telemetry studies and wildlife surveys.

The Conservation and Research Center is not open to the general public, since the staff is busy full time taking care of the animals and doing research, and many of the animals require a certain degree of tranquility and seclusion for successful breeding. By concentrating on conservation and research, the Center avoids duplicating the exhibition and public education functions of the National Zoo in D.C. The foresight of National Zoo officials in establishing the Conservation

and Research Center is paying off, and through the work of its hard-working staff some animals that might otherwise be lost are being preserved.

Ann Harvey is a graduate student in natural resource policy at the School of Natural Resources. She has a deep interest in endangered species, particularly the grizzly bear in the Yellowstone ecosystem.

Resources. . .

Ohio Endangered and Threatened Vascular Plants: Abstracts of State-Listed Taxa is being made available by the Division of Natural Areas and Preserves of the Ohio Department of Natural Resources. The 635-page book contains one-to-three page abstracts on 367 Ohio endangered and threatened plants, including information on species biology and phenology, global and state range, federal and Ohio legal status, habitat ecology, taxonomy, nomenclature, Ohio county dot maps and selected references. To receive a copy send a check or money order for \$17.25 (includes shipping and handling) to: Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224. Include 83 cents more (18.08 total) if you are an Ohio resident.

To Our Readers. . .

I would like to take this opportunity to introduce the new *Reprint* Editor of the *Endangered Species Technical Bulletin*, Paul Larmer. Paul is a second year graduate student in natural resources who has taken over the editing/management responsibilities for the *Reprint*.

I apologize that there has been some delay in getting the last two issues of the bulletin to you. This has been a transition period for us as I will be leaving the School of Natural Resources to take a public relations/development position at the Kansas City Zoo. It has been a pleasure serving as *Reprint* Editor since we began this effort in November 1983 and I'm excited about the energy and commitment that Paul brings to this project as the new *Reprint* Editor.

Thank you for your continued interest and support.

— Rich Block

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