

# ENDANGERED SPECIES

## Technical Bulletin Reprint

Wildland Management Center  
The University of Michigan



From the World Wildlife Fund-U.S.

### The Amazon: The Nightmare and The Dream

One need not be a pessimist to claim that the future of Brazilian Amazonia is threatened. Massive government sponsored development schemes including the building of Tucuruí Dam in the Southeast, the recent and continuing human migration in the hundreds of thousands per year to Rondonia in the Southwest, as well as the ten-year Grande Carajas project mining the world's largest iron ore deposit and associated regional development also in the Southeast, dwarf the building of Egypt's Aswan Dam by comparison. Yet, because of an expanding human population and an ever increasing international monetary debt, the government of Brasil, a country rich in almost every form and type of life, feels it has little choice.

The Amazon has enticed exploitation since it was first explored by Europeans in 1500. Even after the failures of privately financed development projects of historic proportion such as Henry Ford's Fordlandia in the 1930's and Daniel Ludwig's Jari in the 1970's, only recently, and to relatively few, has the idea occurred that the Amazon Basin may not be what it seems. An area of mostly very poor soil, rampant with debilitating diseases to which humans are prone (Leishmaniasis and malaria to name just two), in which as late as 1944 on U.S. government issued maps local tribes were termed as being either "hostile" or "unfriendly," the Amazon Basin appears undesirable for large-scale, long-term human habitation or development.

However, because of its wealth of endemic species, the Amazon is a naturalist's dream. Here in the Brazilian Amazon is located what is probably the world's largest controlled ecological study. As development proceeds the project is providing scientific data for subsequent use in future tropical conservation planning. The

theory and description of this study, directed by WWF-US Vice President for Science Thomas E. Lovejoy, is as follows:

One of the most significant yet least appreciated ways people are affecting the ecology of our planet is by fragmenting previously continuous wildlands into isolated bits of natural habitat. This is because the effects are more far-reaching than the actual habitat destruction involved in the fragmentation and isolation. No longer part of a larger system, the fragments of forest or other wildland are unable to support the full variety of plant and animal species that they previously maintained. These isolated ecosystems lose species—in a sense they leak them—until ultimately they are impoverished versions of their former selves.

This is happening on land all over the planet. Very little is known about fragmentation ecology and yet clearly it is fundamental to conservation planning. It would be easy to assume that an isolated protected area could conserve a particular species or set of species just because it or they already exist therein. However, because of the inexorable change from the species loss process, this is not the case.

Obviously a great deal more knowledge is needed if conservation areas are to be designed or managed to ameliorate the species loss problem. Studies of actual islands or existing habitat patches are a help. Assuming that there is some knowledge of which species were present when isolation took place, it is possible to gain some idea of species prone to disappearance from isolated ecosystem fragments. Hidden from such studies, however, are the events (other than isolation itself) which led to the loss of these species.

The joint Brazilian (National

Institute for Amazonian Research)-U.S.(World Wildlife Fund) Minimum Critical Size of Ecosystems Project north of Manaus in the Central Amazon takes advantage of a fortuitous circumstance (Brazilian law states that an amount of land equal to that cleared must remain pristine) to study the species loss process as it happens. Forest plots of various sizes (One, ten, 100, 1,000 hectares plus one large block in excess of 10,000 ha.) are demarcated and studied while part of continuous forest. Subsequent to their isolation through development, the species loss process can be studied and observed directly.

Through initial support from the U.S. National Park Service and The AID Man and Biosphere Program, the Minimum Critical Size Project is now in its fifth of twenty projected years. Because changes will be taking place within the reserves hundreds of years hence, in June 1984 upon recommendation by Special Secretary for the Environment Paulo Nogueira-Neto and the newly established National Environment Council, the Brazilian government put them in a special category of protection: Areas of Ecologically Relevant Interest.

Initial results of the study have primarily involved effects at the newly exposed forest edges. These include overcrowding by refugees from the surrounding destroyed forest, invasion by second growth species suddenly favored by the environment, and dramatic alteration of the ecology by drastic change in microclimate (fluctuating as opposed to the formerly virtually constant temperature and relative humidity). Annual reports from and publications on the M.C.S. Project are available from World Wildlife Fund, 1601 Connecticut Avenue, N.W., Washington, D.C. 20009.

# New Population of Siberian Cranes Discovered: Refuge in China Established

by Jeff Knopp

International Crane Foundation

A large population of one of the world's most endangered avian species, the Siberian Crane (*Grus leucogeranus*), has recently been discovered in China, pushing the species known number close to 1000 individuals. Native to Asia, this species nests in the vast tundra wetlands of Siberia and migrates to wintering grounds in Iran, India, and the newly-discovered area in China. Through both international cooperation and habitat protection, this new flock appears to be fairly secure and, with this discovery, more than triples the entire known population of the species.

Before 1980 the Siberian's only known wintering grounds were located in Iran and India. During migration to these wetlands the cranes are forced to navigate over politically unstable areas where native people hunt the

cranes for food or sport. However, in 1980 an entirely new and separate flock of 100 Siberian cranes (wintering along the Yangtze River at Poyang Lake in Jiangxi Province, China) was discovered by two Chinese scientists. With the discovery of this new flock, a 22,000 hectare wetland nature preserve was set aside by the Chinese government. This preserve will not only secure the Siberian Crane flock, but also a remarkable array of 130 other species of water-loving birds that depend upon Poyang Lake, the largest freshwater lake in China. Two other rare crane species, the Hooded (*Grus monachus*) and White-naped (*Grus vipio*) Cranes have also been observed at Poyang.

During an extensive aerial survey of Poyang Lake two months ago, an astonishing 840 Siberian Cranes were counted. In addition to its size and protected status, this flock offers an additional factor; it represents a geographically-isolated group which will help assure genetic variability within the species.

A national committee was recently established in China to promote research and protection for crane populations. Eight of the world's fifteen crane species depend upon China's wetlands for their survival. Without a doubt, China is the "crane capital of the world." The Chinese government and scientific community should be commended for their diligence in the protection of endangered species.

Dr. George Archibald, co-founder of the International Crane Foundation (ICF), and colleagues will be leading EARTHWATCH volunteer teams to several wetlands in China, including Poyang. These trips will be held during the fall and winter of 1984-85 and will concentrate on monitoring the crane populations of China. For further information about these trips and other international efforts in the protection of cranes and their wetland habitats contact: The International Crane Foundation, Route #1 Box 230 C, Shady Lane Road, Baraboo, Wisconsin 53913 (608) 356-9462.



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## Interior Reviews Invertebrates

The Interior Department's U.S. Fish and Wildlife Service has published a notice of review that identifies over 1,000 species of invertebrate animals as candidates for possible addition to the U.S. list of endangered and threatened species. The notice, published in the May, 22 1984 *Federal Register*, is the first such candidate list drawn up for invertebrates. Publication of the candidate notice does not constitute formal proposal of the species for addition to the endangered species list, however.

Fifty-one invertebrate species are currently listed as endangered or threatened. The number of invertebrate species worldwide is estimated to number several million. In contrast, nearly 20,000 vertebrate and 200,000 plant species are thought to exist.

The Endangered Species Act directs the Fish and Wildlife Service to review the status of species when scientific evidence indicates they may be endangered. To obtain that data, the Service has periodically compiled candidate lists as a tool to identify species for which formal listing may be

justified. Candidate lists have been compiled for plants and vertebrates in the past.

The notice mentions all known invertebrate species native to the United States that may warrant protection under the Endangered Species Act, based upon the best available data, as well as those species for which listing could be considered once more conclusive data becomes available.

The Service has assigned different levels of status to the species on the candidate list, based on nearly 3 years of data collection and review. Of the 1,000 invertebrates, the Service considers 35 species as meriting formal listing based on existing biological information.

Of the remainder, the Service feels that 841 species could be proposed for listing only if additional information about their status and biological vulnerability becomes available. A separate category of 141 invertebrates has been compiled to include those species whose extinction is suspected, or that do not meet criteria for listing under the act.

# Zoos Cooperate to Aid Golden Lion Tamarin

*Courtesy of the  
Brookfield Zoo Bison*

Reintroducing captive-born animals to the wild has become a goal of zoos. While many potential problems can be identified and this may not be possible for many species, additional experience is needed. Brookfield Zoo is participating in one of the most interesting of such efforts in the Brazilian coastal rain forest.

The golden lion tamarin is a small South American primate. It is striking in appearance and highly endangered. While its numbers have declined to less than 100 in the wild, the captive population has thrived, increasing to over 450 (see "Captive Breeding of Primates," *Brookfield Zoo Bison*, November/December 1983), making this an excellent candidate for reintroduction.

Far from simply taking animals to Brazil and releasing them in a protected forest, Dr. Devra Kleiman of the

U.S. National Zoo has developed a plan which includes a field study, reforestation, a conservation education program in Brazil, the construction of a quarantine facility at the Rio de Janeiro Primate Center, an acclimatization period, and a post-introduction success study. Dr. Ben Beck of the National Zoo conceived the plan for the acclimatization study.

The Poco das Antas is one of the few protected areas of the rapidly diminishing Brazilian coastal rain forest that once formed part of the tamarin's original range. Brookfield Zoo has contributed two of the animals scheduled for release.

Prior to their release, the captive-born animals are being held for about six months at the Rio de Janeiro Primate Center. During this period, they are being taught to forage on their own for natural foods. Individuals are being studied so that their captive behavior can be related to their success in the wild. Beate Rettberg, Assistant Lead Keeper in the Primate

Department, played an important role in the early phases of this project in Brazil. Her participation was supported, in part, by a grant from the Chicago Zoological Society. Ms. Rettberg has been involved with Brookfield Zoo's marmoset breeding colony since 1979. During this time, 30 golden lion tamarins have been born at Brookfield Zoo. Ms. Rettberg was recently appointed studbook keeper for another endangered South American primate, the Goeldi's monkey.

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## Plants in Danger

by Jane Lamlein

Smithsonian Institution

IUCN's Conservation Monitoring Centre is compiling a book for publication later this year, to be entitled "Plants in Danger: What Do We Know?" The information will be gathered by members of the Threatened Plants Unit at Kew and the Smithsonian Institution. The purpose of the book is to provide a ready reference to information on threatened plants. It will be a data referral system, designed to try and answer the question "Where can I find out about the flora of any specified country, its conservation status and who should I contact?"

The book will provide entries for each country outlining what is known about its threatened plants, e.g. by providing a reference to the national Red Data Book or similar work, showing how well the flora is known and giving addresses of prominent institutions involved in plant conservation.

Over the last decade, progress in documenting threatened plants has been rapid. Many countries have produced their own national plant Red Data Books, and threatened plant lists are being compiled for many others. In many countries these initial efforts are developing into small data-bases in their own right. Therefore, it seems sensible to try and document the large amount of work already done at the national level on identifying threatened plants. An estimated 25,000 to 30,000 plant species are threatened and at least 15,000 of them have been identified so far. No one book can hope to cover all these species. But what IUCN is attempting to do is produce a publication which will be the first source of reference for anyone wanting to know about the threatened plants of any country.

## Interior Withdraws Proposal to Remove Kangaroos from Endangered and Threatened Species List

The Interior Department's U.S. Fish and Wildlife Service has withdrawn a proposal to remove three kangaroo species from the U.S. endangered and threatened species list. The proposal was based on a petition from the Australian Government in 1982; its withdrawal was made after more recent data from Australia indicated a substantial drop in kangaroo populations due to widespread drought last year.

This action maintains eastern gray, western gray, and red kangaroos as Federally listed "threatened" species. A "threatened" designation indicates that a species faces less severe problems than species listed as "endangered."

Large parts of Australia experienced the worst recorded drought in that country's history in 1982 and 1983. The drought resulted in a decline of 17 percent in red kangaroos and 20 percent in gray kangaroos in New South Wales and South Australia between 1981 and 1983; smaller declines are thought to have occurred in Queensland and Western Australia. The nationwide kangaroo population is now estimated at between 10 and 12 million animals, down from a pre-drought estimate of 19

million.

Kangaroos, which are considered competitors with domestic livestock in water-short regions of Australia, are culled under management programs developed and regulated by the individual Australian State governments, with proceeds from the sale of hides and meat used to support the management programs. In response to the recent decline in kangaroo numbers, the Australian States have reduced their combined culling quotas by more than 40 percent.

The proposal to remove the three kangaroo species from "threatened" status was published in April 1983, but the Fish and Wildlife Service postponed its decision until now in order to await the results of Australia's latest kangaroo population surveys, which documented the effects of the drought. The drought has now broken and the resilient kangaroo populations appear to be resuming normal breeding.

By continuing to list these kangaroos as "threatened" species, the Service will monitor their status in Australia and could again propose their removal from "threatened" status if their numbers rebound.

# Cincinnati Zoo Promotes Eagle Recovery in Ohio

The endangered American Bald Eagle is being given a better chance for survival by the efforts of the Cincinnati Zoo.

On Friday, April 13, after a twenty-nine day incubation period, two eaglets were hatched in the Zoo's Bird of Prey Flight Cage to the Zoo's Bald Eagles, Betsy Ross and Brookfield Baldy. Brookfield Baldy is on a breeding loan from the Brookfield Zoo in Chicago. This marks the pair's fourth successful hatching.

Earlier, there had been some concern that Betsy Ross was too old to breed. She was hatched some time before 1957, making her about thirty years old. "We were quite concerned," said Zoo Curator Robert Lotshaw, "but she came through with flying colors."

Currently, the parents appear to be caring for their offspring without any problems. When the chicks are about 3-4 weeks old, they will be removed from the nest and released into the wild somewhere in Ohio. The Cincinnati Zoo is working in cooperation with the Ohio Department of Natural Resources in this attempt to save Ohio's dwindling Bald Eagle population.

There are two methods of releasing chicks into the wild, according to Lotshaw. In one method, called "hacking," the chicks are placed in a tall tower where they are fed in a method which encourages the eaglets to become wild.

In the other method, the birds are placed in wild nests already occupied by adult eagles. The adult eagles will assume responsibility for the care of the new eaglets said Lotshaw.

In 1979, an eaglet hatched by Betsy Ross and Brookfield Baldy was released in the wild by the Cincinnati Zoo and the Ohio Department of Natural Resources in a hacking tower.



Betsy Ross incubates the eggs in the zoo enclosure.



Adult stands over the two chicks, hatched on April 13.

photos courtesy of the Cincinnati Zoo

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