



CRES

CENTER FOR REPRODUCTION OF ENDANGERED SPECIES

REPORT

SPRING 1993

CRES® is operated by the Zoological Society of San Diego.

Finding Ways to Save the Giant Panda

The charming, cuddly black-and-white giant panda the world has come to cherish is, without a doubt, on the brink of extinction. Few members of this species exist in the wild, and the small captive population has not reproduced successfully enough to become self-sustaining. In the

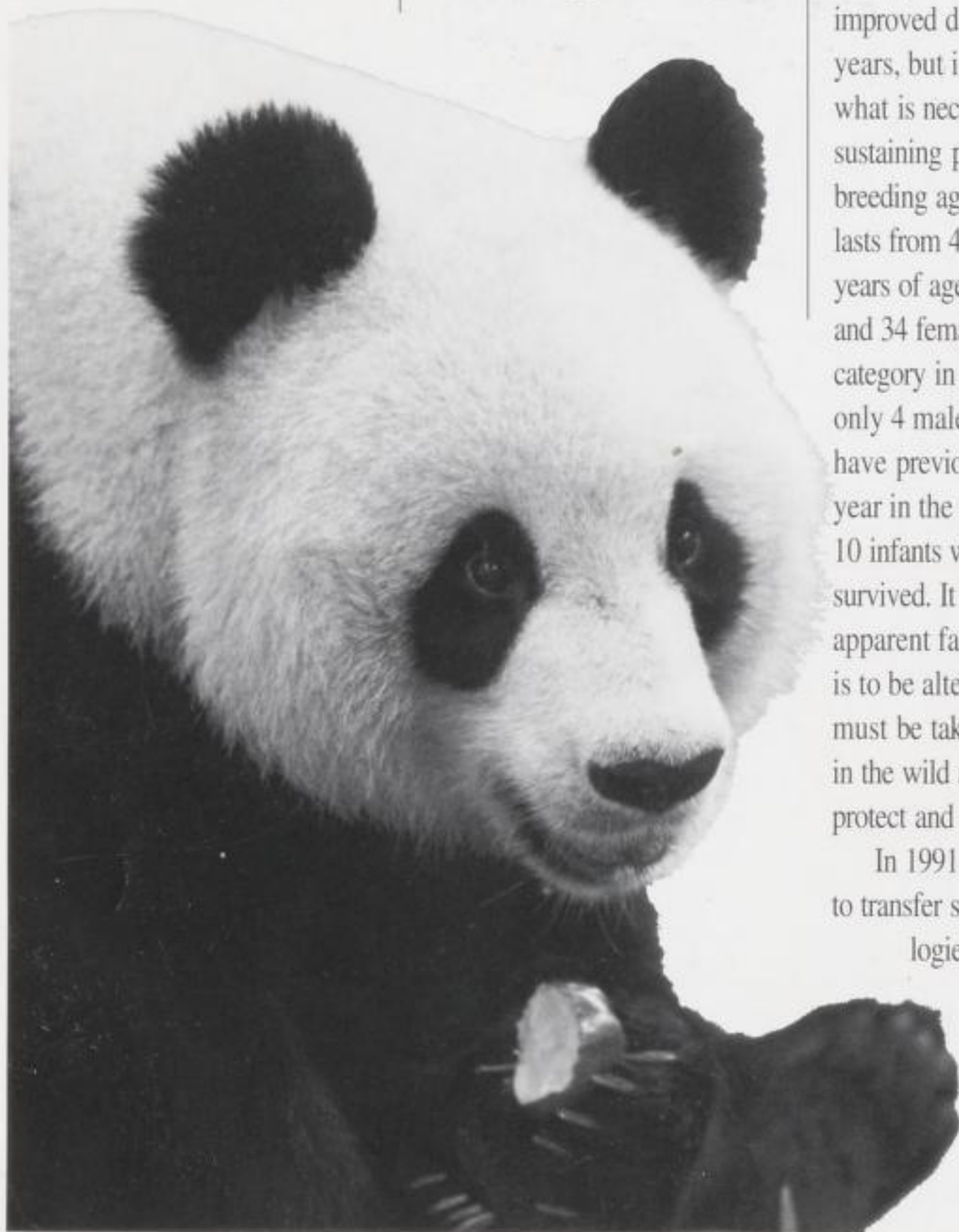
wild, giant pandas exist in small, isolated populations with a total number of fewer than 1,000. Poaching persists despite stringent regulations by the Chinese government, and habitat continues to give way to logging projects and village growth.

There are approximately 100

giant pandas in captivity and, of these, 17 live outside of China. Historically, giant pandas have been given to a nation as gifts of the state. For this reason, they often reside in capital cities, such as the National Zoo in Washington, D.C.

Reproduction in captivity has improved during the past few years, but it is still far below what is necessary for a self-sustaining population. The breeding age for the giant panda lasts from 4 to a maximum of 20 years of age. Currently, 23 males and 34 females fit this age category in captivity. Of these, only 4 males and 15 females have previously reproduced. This year in the captive population, 10 infants were born but only 7 survived. It is clear that if the apparent fate of the giant panda is to be altered, critical steps must be taken immediately--both in the wild and in captivity--to protect and enhance this species.

In 1991, we began an effort to transfer some of the technologies available in our laboratories at CRES to the scientists at the panda breeding centers within



Dr. Donald Lindburg
*Named to committee.
See page 4.*



A flamingo for your own
*How you can help CRES.
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Virology studies for black rhinos
*Immune responses for a rare species.
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INSIDE CRES



Behavior

Dr. Jacqueline Ogden continues to expand the role of the behavior division at CRES in conducting applied research in the area of exhibit evaluation. As part of this work, Dr. Ogden has been researching the effects of the technologically sophisticated sound system in Gorilla Tropics on the gorillas housed there. Specifically, she is interested in the effect of different noises associated with captive housing, such as cleaning and vocalizations of other primate species, and the ability of ecologically relevant rain forest sounds (such as bird songs) to mask such noises in the gorillas' indoor holding facility. The results of her study indicate that the captive-housing noises did have an effect on the behavior of the gorillas and are associated with increased displays and arousals. The rain forest sounds did effectively mask these effects for the young animals involved in the study, but they did not do so for the adults. Plans are underway to modify the sound system to allow the gorillas to turn the sounds on and off by their presence in particular areas. If conducted in the exhibit area, this might allow us to reinforce use of different areas of the exhibit.

Cytogenetics

Researchers in the cytogenetics division at CRES are working with veterinarians, curators, and other researchers to identify animals with chromosomal abnormalities or rearrangements. The reproductive success of animals in captivity can depend on the detection and



documentation of chromosomal abnormalities. Such abnormalities can also identify the cause of death, which might otherwise go undetected at a postmortem examination. CRES researchers worked with geneticists at the Brookfield Zoo in Chicago to discover why an okapi calf had died soon after birth. It was diagnosed with a trisomy condition (three copies of a chromosome instead of the normal two). At the San Diego Zoo, a pair of douc langurs with a history of stillborns and abortions was evaluated chromosomally. It was found that the female is a carrier for a balanced chromosomal rearrangement, putting her at high risk for unsuccessful pregnancies. With this knowledge, animal care managers can remove her from the breeding pool. Identification of chromosomal abnormalities is, of course, based on the researchers' knowledge of the normal chromosomal complement for a species, against which any abnormalities can then be compared. Many species still remain to be evaluated, and the cytogenetics division at CRES continues to study the chromosomes of a wide range of mammalian species.

Virology/ Immunology

As the population of free-ranging black rhinoceroses declines rapidly, the need for information concerning the genetic health of the species has become urgent. Dr. Michael Worley, virologist, and Ann Carpenter, senior laboratory technician, of the virology/immunology laboratory at CRES have isolated DNA clones of the major histocompatibility complex (MHC) of two subspecies of black rhinoceros. The MHC plays a major role in the recognition of infectious agents as being foreign and in the regulation of the ensuing immune response. Many scientists believe there is a direct correlation between the extent of genetic variation in the MHC and the ability of an individual's immune system to respond beneficially against infectious organisms. Using the DNA clones they have isolated as molecular probes, Worley and Carpenter will determine the level of variation in this gene product in both captive-raised and free-ranging members of the two geographically separated black rhino subspecies.

"Can Do" for Endangered Species

Cans for Critters invites teachers and parents to join in the fight to save endangered species by attending an orientation to be held on Saturday, February 6, 1993, in the Rondavel at the San Diego Zoo. For more than a decade, San Diego County students have helped endangered species by recycling cans and donating the proceeds to the Zoological Society's Center for Reproduction of Endangered Species (CRES). Fun incentives such as *Cans for Critters* neon pencils, stickers, and discount coupons for the Zoo and Wild Animal Park are provided by the Zoo. Special prizes for top collectors are awarded at the Jamborees held at the Zoo and Wild Animal Park at the end of the drive. While total proceeds from this year's *Cans for Critters* drives are not yet tallied, the *Cans kids* have already contributed more than \$42,000 to the 1992 *Cans for Critters* campaign. For more information on how your school or group can participate in the March 1st Spring Drive, please call Arlene Wyrick at the Zoo's development office, (619)231-1515, ext.4597.