



CRES

CENTER FOR REPRODUCTION OF ENDANGERED SPECIES

REPORT

SUMMER 1996

A Team Effort: Carnivore Preservation



At the beginning of 1995, the equipment "wish list" for the reproductive physiology division of CRES read: 1 stereo microscope, 2 vacuum pumps, 1 diluter/dispenser, and 1 small incubator. However, it took the support of the local veterinary community, as well as responsible pet owners who brought in their dogs to be neutered or spayed, for this project to be possible. Endangered carnivores such as cheetahs, Cape hunting dogs, tigers, and fishing cats are just a few of the species to benefit from canid reproduction studies at CRES.

The preservation of carnivores is of critical importance because of the role predators play in maintaining a balance between herbivore populations and the vegetation consumed by those herbivores. As carnivore populations dwindle in the wild, captive-breeding programs will assume an increasingly significant component of conservation strategies. Germ plasm cryopreservation will serve as a vital resource for captive breeding as it will minimize the space and costs required for holding large numbers of individuals. Germ plasm—ova, sperm, and embryos—can be stored in liquid nitrogen until it is needed to enhance

the genetic diversity of captive or wild populations.

Sperm production is continuous throughout life in male mammals. Therefore, it is possible to extract mature sperm from an animal at any time after sexual maturity. The reproductive physiology division of CRES currently harvests testicular sperm post-mortem from many endangered species and good quality samples are cryopreserved, thus preserving potential genetic contributions from deceased individuals.

Female mammals, unlike

males, do not continue to generate gametes after they are born. Thus, at birth a female's ovaries contain a reservoir of immature

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Polar bears are just one of the species to benefit from CRES studies on carnivore reproduction.

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Saving Rhino Species
Captive reproduction is the key. See page 3.



The Society's New Web Site
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Estate Planning Techniques
How you can help CRES. See back cover.

Wishing for Rhino Reproduction

The endocrinology and behavior divisions at CRES have a major item on their 1996 "wish list": a three-quarter-ton, 4-wheel-drive truck to be used at the Wild Animal Park for fertility studies on the northern white and southern white rhinos.

All species of rhinoceros are endangered. Wild populations of rhinos are being annihilated by poaching and loss of habitat. The critical status of these populations demands the success of captive reproduction in order to secure self-sustaining populations for the future. The San Diego Wild Animal Park maintains four species of rhinoceros: black, southern white, northern white, and Indian.

All but the northern white rhino species have reproduced at the Park.

While this is remarkable and one of the best records in any captive facility, there are still major reproductive problems to overcome in order to have self-sustaining populations. For example, the Park has had the amazing success of more than 80 births of southern white rhinos—however, only animals imported from the wild have reproduced. None of the offspring born in captivity (i.e., F1 generation) have reproduced; in fact, throughout North America, only 2 of 50 F1 animals have reproduced. This is obviously a serious problem because the wild-born population is advancing in age. We must begin to understand

the reproductive problems in the F1 generation if we are to continue a viable captive population of this species.

Another species, the northern white rhino, is on the verge of extinction: only one population of 30 animals exists in the wild, and only 11 are held in captivity. The Park has the only population of this species in North America, with two males and two females. No matings had occurred in this species at the Park until last year. Our ability to monitor reproductive cycles and diagnose pregnancy is crucial to our goal of reproducing this rare species.

For the black rhino as well, the reproductive rate in the captive population is much lower than that which occurs in the wild. Again, this is another rhino species that demands a complete reproductive study.

The staff members in the endocrinology division at CRES have established and validated methodology to monitor reproduction in all three of these rhino species. Since blood samples cannot be routinely taken from the rhinos, we have developed fecal hormone assays to permit the evaluation of ovarian

function and the detection of pregnancy. We have worked toward this goal during the last five years. Daily fecal samples are collected from selected animals from each of these species. Once collected, samples are processed to determine their hormonal content. In collaboration with behavior division staff members, who are recording observations of behavioral variables, we propose to correlate hormonal results to behavioral observations of the rhinos.

With this information, we will be able to determine whether individual animals are ovulating, infertile, or pregnant. Without hormonal analysis, it is currently impossible to make these determinations. Technical support in the laboratory and supply funds are needed to complete this study, which is critical for the worldwide northern white rhino population.

—Nancy Czekala, Endocrinology Specialist/CRES



With more than 80 southern white rhino births since the early 1970s, this is one of the great success stories for the San Diego Wild Animal Park.