



CRES

CENTER FOR REPRODUCTION OF ENDANGERED SPECIES

Unlimited Possibilities: Celebrating 20 Years of CRES, 1975-1995

Where do zoo professionals turn when they need to determine the sex of a bird or a reptile? What can be done if a mysterious virus attacks hoofed stock? How can curators and keepers successfully manage a cheetah population of "fussy" breeders? Why won't the dik-dik colony produce offspring? And why are Darwin's rheas hatching deformed chicks?

Just 25 years ago, these questions could not be answered by zoo veterinarians and curators: the basic biology of most species was still unknown. While zoos have existed for centuries, research departments associated with zoos are relatively new. But, as zoos began to focus on successfully breeding endangered species and managing healthy and self-sustaining

populations, questions of animal diseases and solutions to reproductive problems were raised.

At the San Diego Zoo, a hospital was built in 1926, funded by Ellen Browning Scripps, for the treatment of animals and for related studies. This was in answer to San Diego Zoo founder and physician Dr. Harry Wegeforth's great wish for a place where medical personnel could study comparative medicine between humans and animals.

However, a well-defined research department—one that focused on animals and their health and not on animals as models for human medical problems—did not exist at the Zoo until nearly half a century later.

One of the first CRES projects involved learning how to sex Darwin's rheas.

The Center for Reproduction of Endangered Species (CRES) owes its beginnings to the farsighted planning and unflagging energy of the late Dr. Charles Schroeder, the Zoo's director from 1954 to 1972; to Dr. Kurt Benirschke, a physician who conducted pioneering work in human twinning and was Professor of Pathology and Reproductive Medicine at the University of California, San Diego; to Charles Bieler, who became Zoo director in 1973; and to the Society's board of trustees, who approved the vision for CRES.

It was the Zoological Society's good fortune that Dr. Benirschke, who became the first CRES director in 1975, already had associations with zoos when he came to UCSD in the early 1970s. His remarkable

Continued on page 2



REPORT

SPRING 1995

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



Is This the Year?
Northern white rhinos receive a "hormonal jumpstart" for 1995. See page 3.



Adopt a Bear!
How you can help CRES. See page 5.



The Pandas Are Coming!
The Zoo receives its import permit. See page 4.





Reproductive Physiology

Significant progress has been made in the Society's efforts to breed the northern white rhinoceros. This severely endangered species numbers less than 50 individuals worldwide, with only 10 in captivity. Unfortunately, captive reproduction of this magnificent species has been extremely difficult. Because of our success breeding the southern white rhino, with more than 100 births, the San Diego Wild Animal Park was given four northern whites (two males and two females) as the nucleus of a breeding herd. Neither of the 21-year-old females had ever exhibited estrous behavior, and preliminary fecal steroid analysis did not reveal fluctuations of estrogens or progesterins indicative of cyclicity. Both females, Nola and Nadi, were given a series of hormone treatments devised by Dr. Barbara Durrant of the CRES reproductive physiology division to mimic the normal estrous cycle of a rhinoceros. Following this "hormonal jumpstart," both females began to cycle on their own. Ultrasound examination of the ovaries of each female confirms that ovulation is occurring, and there have been behavioral



signs of estrus. We are optimistic that breeding will occur in 1995 for this critically endangered species.

Comparative Physiology

Chemical and visual signals play an integral role in maintaining social systems among lizards. Communication in

many species is characterized by elaborate head and body displays that establish dominance, define territories, and facilitate courtship and reproduction. Fiji Island banded iguanas, which have well-developed scent glands and are noted for their striking colors and complex displays, probably rely extensively on both types of signals. In collaboration with the San Diego Zoo's reptile department, Dr. Allison Alberts, CRES comparative physiologist, and Jeff Lemm, research assistant, have initiated studies to determine the types of information communicated through visual and chemical signals in this species. They are investigating the distance over which signals function, as well as how exposure to different types of signals influences reproductive success, and the spatial distribution of males and females in the environment. Banded iguanas are endangered, primarily because they inhabit fragile island ecosystems. The Zoological Society maintains a long-standing commitment to the conservation of banded iguanas through its highly successful captive propagation program. These new studies represent an excellent opportunity to strengthen and broaden our involvement with this

unique species. Research on the behavioral mechanisms controlling individual spacing patterns and reproductive processes will be important not only in designing management protocols that promote successful reproduction in zoos but also for determining the amount of space necessary to support a viable population of iguanas in a reserve system in the wild.

CRES Grants

The Armstrong McDonald Foundation and the Morris Animal Foundation have made generous grants toward the preservation of endangered carnivore species through the CRES reproductive physiology division. Under the direction of Dr. Barbara Durrant, the study will explore carnivore oocyte growth, maturation, and fertilization. Assisting Dr. Durrant will be Dr. Digbo Bolamba, a postdoctoral fellow from the University of Laval, Quebec, Canada. CRES is pleased to recognize these foundations for their role in protecting endangered species from extinction.

