C·R·E·S®
CENTER FOR REPRODUCTION OF ENDANGERED SPECIES

REPORT
FALL 1997

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The Rhino Reproduction Puzzle

The Heller Foundation of San Diego has established in perpetuity the Bud Heller Conservation Fellowship for CRES research at the San Diego Wild Animal Park. The $30,000 annual fellowship was named in memory of the late Bud Heller, who quietly supported the Zoological Society for many years to help make the Wild Animal Park the treasure it is today. Bud's generous personal and foundation gifts, which consisted of much-needed yet unglamorous items from trucks to wire fences, totaled nearly half a million dollars. Bud always declined the recognition he so deserved, and the Society is delighted that the Heller Foundation of San Diego has chosen to make this meaningful tribute to a modest man who made an important difference to conservation.

The first Bud Heller Conservation Fellow is Alan Fetter of the endocrinology division, and his reproduction studies are with the Park's several species of rhinos. These are all time-consuming projects, both in coordination and laboratory work, and so the Bud Heller Conservation Fellowship comes at a most-needed time. The Fellowship provides the support for Alan Fetter to study these intriguing and important questions on rhino biology. CRES thanks the Heller Foundation for providing this valuable opportunity to improve our knowledge of the rhinoceros at such a critical time.

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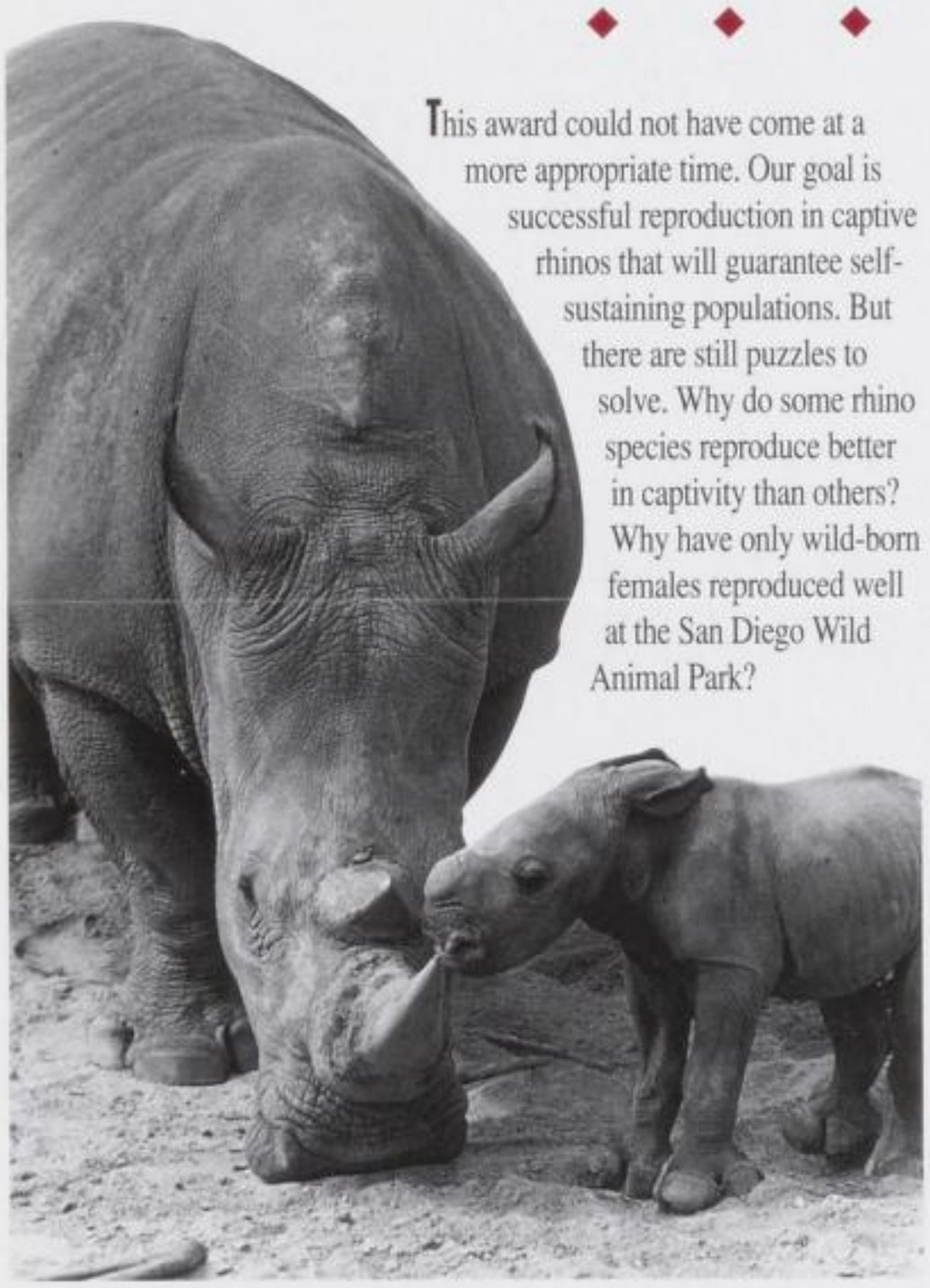

This award could not have come at a more appropriate time. Our goal is successful reproduction in captive rhinos that will guarantee self-sustaining populations. But there are still puzzles to solve. Why do some rhino species reproduce better in captivity than others? Why have only wild-born females reproduced well at the San Diego Wild Animal Park?

Wild-born southern white rhinos have reproduced well at the Wild Animal Park, but no captive-born females have reproduced. This is one reproduction puzzle that CRES scientists are working to solve.

During the last five years, we have established new techniques to monitor reproduction and stress in the black and the white rhinos. Since daily blood samples are not appropriate or safe to obtain from most rhino species, we have developed techniques to measure reproductive and adrenal steroids in fecal samples. Fecal samples are abundant, simple to collect, and collection procedures are noninvasive to the animal. This allows evaluation of daily reproductive hormones to assess ovulation, early pregnancy, infertility, and impending parturition (birth). In addition, to indicate if an animal is experiencing stress, adrenal steroids can also be measured in the feces. Hormonal evaluations using these techniques can be applied to help solve several problems.

For example, free-ranging rhino species in general have a much better reproductive rate than those populations held in captivity (although wild rhinos have a poor survival rate because of poaching). The captive black rhino

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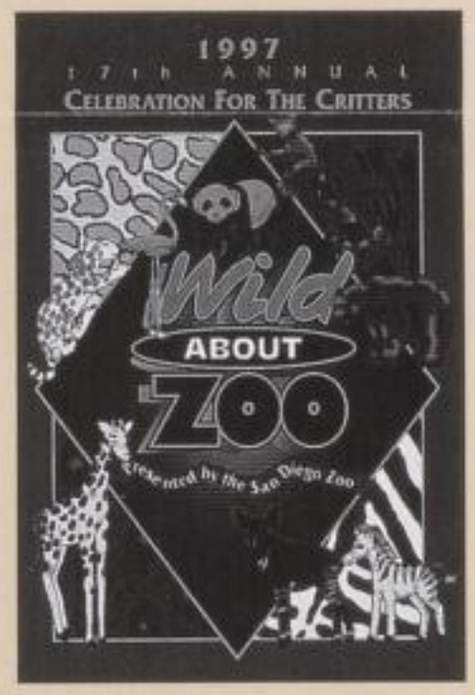
Pygmy Loris
Captive breeding for a rare species.
See page 3.

Marion Shea and Friends
Saying good-bye to a loyal CRES supporter.
See page 4.



Wild About Zoo
Save the date for Celebration!
See back cover.

The Rhino Reproduction Puzzle

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population has been reproducing at a lower rate than the free-ranging population. We have coordinated a study during the last three years to compare reproductive and adrenal hormone patterns between captive black rhinos and a population of free-ranging rhinos in Zimbabwe. Our goal is to determine any differences in hormone patterns that may exist between these two populations. This information will help define any changes that should be made to the captive management plan. It may also provide information to wildlife managers on techniques for pregnancy detection, which may be used in the field.

The only captive population of northern white rhinoceroses in North America is at the Wild Animal Park, and they have not reproduced. Our population of two males and two females needs to be thoroughly evaluated for reproductive fertility. Fecal hormone analysis of the females will provide valuable information to the animal care managers and veterinarians so that proper pairing or treatment can take place.

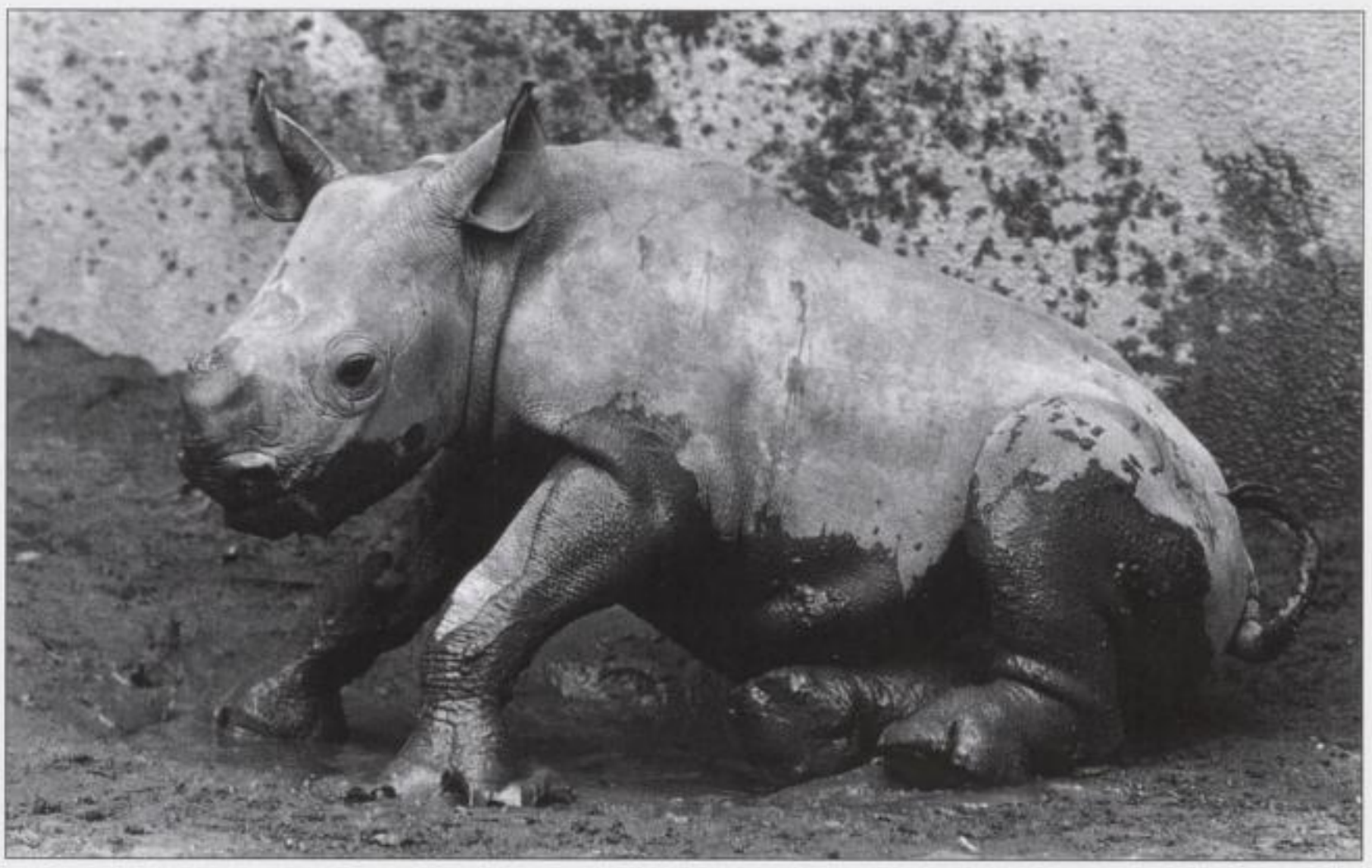
The Wild Animal Park has been very successful in contributing to the captive population of the southern white rhino: since 1972, some 83 rhinos have been born at the Park. While this in itself gives us reason to celebrate, we are still plagued by a reproductive problem in this species. All Park births have been to mothers born in the wild, while none of the captive-born females have given birth. This is not a problem unique to the San Diego rhinos, since only 8 percent of captive-born females have reproduced in North America.

How can it be that we are so successful with wild-born rhino females but fail with the captive-born females? This is a vital question that must be answered, given the increasing decline of the species in the wild and the aging wild-born captive population. Our questions revolve around possible reproductive suppression by family groups or some other stressor. Together with the CRES behavior division, which is monitoring behavioral variables in both captive-born and wild-born females, we will evaluate their reproductive hormone cycles to look for any unusual pattern differences and any changes in stress. With this combined study, we look forward to uncovering clues that may solve this problem of poor reproduction in the captive-born rhinoceros population.

—Nancy Czekala
Endocrinology Specialist/CRES

Alan Fetter is the first Bud Heller Fellow. His research will focus on reproduction in both white rhinos and black rhinos.

The late Bud Heller (below) was a longtime supporter of the Zoological Society of San Diego, and the Heller Foundation continues to support projects at the Zoo and Park.



A young black rhino calf born at the San Diego Wild Animal Park.