

BOOK REVIEW . . .

Rhinos as Game Ranch Animals, B. L. Penzhorn and N. P. J. Kriek, editors, South African Veterinary Association, Onderstepoort, 1994, (Available from the secretary of the South African Veterinary Association, Wildlife Group, P.O. Box 12900, Onderstepoort 0110, Republic of South Africa, \$40.00 U.S.), 242 pp.

This is a proceedings of a symposium held at Onderstepoort, South Africa, 9 and 10 September 1994. The title of the book, "Rhinos as game ranch animals," is slightly misleading because most papers are about rhino conservation and management in the free-ranging state. Although not stated in an introduction, it becomes evident that the symposium was organized for the benefit of private land owners who were or wished to become game ranchers for rhinos. Most of the papers have relevance to game ranching, but primarily as background information on biology, feed utilization, behavior, and to a lesser extent, medicine.

Thirty-four papers were presented by researchers, field biologists and veterinarians representing most of the countries in eastern and southern Africa. Eight papers dealt with conservation issues, nine with the management of rhinos in the free-ranging state, two with management of rhinos in captivity, six with game ranching experiences to date, one with trophy hunting, two with range assessment and feeding strategies, and 12 with diseases, immobilization and reproduction. The material presented by each speaker was based on work previously published in a professional journal. Advanced biotechnology was introduced to non-scientists by two papers discussing DNA and genetic markers of various types.

The ambassador from the Republic of China (Taiwan) to South Africa presented an informative paper on his country's attempt to stop the use of rhino horn as a medicine. It is interesting to read of the differences in game ranching among various countries. In South Africa, those who are approved by authorities may purchase rhinos at auction and they hold title to the animals. In Zimbabwe, land owners become voluntary custodians of the rhinos in an effort to boost the population. Half of the Zimbabwean rhinos are on private property. Important studies of carrying capacity and for-

age utilization by rhinos give evidence that care must be taken in introducing rhinos to non-historic habitats.

A good synopsis of rhino chemical immobilization and anesthesia was presented along with important information on the transportation and holding facility management of these large animals. Clinical parasitism is not a significant problem in free-ranging animals, but over 80 species of parasites have been recorded from black (*Diceros bicornis*) and white rhinos (*Ceratotherium simum*). The included tabulation is a good check list for concerns about reintroductions to nonhistoric habitats or relocation to captivity.

Infectious diseases do not have a major impact on free-ranging populations, although, anthrax, and tuberculosis along with other miscellaneous bacterial infections have been reported. In captivity, hemolytic anemia is the single most common cause of mortality. A significant finding of an alteration of the erythrocyte enzymes of the rhino is under continued investigation.

These proceedings provide an excellent overview of the status of rhinos, conservation, biology, reproduction, chemical immobilization, medicine, and feed utilization. Even more important to rhino biologists, field personnel and veterinarians dealing with rhinos is the extensive bibliography compiled by J. G. du Toit, B. L. Penzhorn, and Evander Wethuizen. Over 1200 references are cited numerically and then categorized by key words. This is a tremendous contribution to those concerned with rhino management.

This paper-backed book should be on the bookshelves of zoos maintaining rhinos, wildlife biologists and veterinarians dealing with large herbivores, private land owners engaged in rhino conservation, and interested conservation biologists in general.

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