

## BOOK REVIEWS

*Animal Behavior and Wildlife Conservation*. Marco Festa-Bianchet and Marco Apollonio, editors. Island Press, Covelo, CA, USA. 2003. 380 pp. \$70. ISBN 1-5596-3958-X (hardcover). \$35. ISBN 1-5596-39598 (paperback).

Wildlife conservationists historically focused on habitat preservation and on the maintenance of genetic variability as key goals. To be sure, without appropriate habitat or genetic variability, a species slides toward extinction. But what is “appropriate” habitat? And what, other than population size, contributes to the loss or maintenance of genetic variability? As the world’s natural areas shrink and the management of the remaining natural “islands” becomes ever more important, these questions become increasingly pressing. And as the editors and contributors to the book point out repeatedly and in varied ways, answering these questions demands extensive knowledge of the behavior of the animal species that one wants to protect.

*Animal Behavior and Wildlife Conservation* convinces the reader of this assertion in several distinct ways. First, there are general and theoretical treatments of how many types of behavior bear on effective population size, population viability assessments, and the design of dispersal corridors. A repeated theme in these chapters is that in most of the species that are the focus of conservation efforts, mating is not random. Individuals, especially females, actively choose mates, and the mechanism of choice influences how a population is likely to respond to changes in habitat or age structure. The mechanism of choice also influences estimates of effective population size and of the degree of population substructuring.

Second, there are reports of case studies in which aspects of behavior such as migration and homing, responses to habitat edges, responses to translocation, and sexually selected infanticide are shown to be critically important. Some of these results are counterintuitive. For example, Norman Owen-Smith reviews work on the success of ungulate translocations and shows that in several species, young appear to require little (if any) parental guidance to learn to select an appropriate diet. Jon Swenson shows that traditional carnivore hunting regulations, which tend to encourage the take of mature males, probably depress recruitment because the removal of

mature males raises the rate of infanticide by replacement males.

Finally, several chapters highlight the importance of studying individual variation in nature. It is, after all, the individual that contacts and interacts with the environment. Population persistence is important, but populations—like species—are in part abstractions. Individuals are real, and just as they are the prime units of selection, so they are the prime units of conservation.

This book convincingly makes the case for the incorporation of behavioral study into conservation biology, and in so doing it highlights the now-mature integration of behavioral ecology into evolutionary study. The book also showcases the dedicated and brilliant work of scientists who have devoted their careers to the difficult task of understanding the lives of individual animals in nature. After I read this book, I found myself wondering not whether knowledge of behavior was relevant to wildlife conservation but rather whether any aspect of behavior is irrelevant.

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**The Return of the Unicorns: The Natural History and Conservation of the Greater One-horned Rhinoceros**. Eric Dinerstein. Columbia University Press, New York, NY, USA. 2003. 316 pp. \$59.50. ISBN 0-231-08450-1 (hardcover).

One of the most enduring images in the history of western art is “The Unicorn in Captivity,” a tapestry from the late Middle Ages displayed in the Cloisters in New York, which shows the noble beast tethered to a tree and constrained by a fence. The allusion to unicorns is explicit in Eric Dinerstein’s recent description of his personal odyssey with the greater one-horned rhinoceros (*Rhinoceros unicornus*) in Nepal, Bhutan, and India. That this rhinoceros still roams free is in no small measure owing to the efforts of the author. As George Schaller says in the foreword: “Eric Dinerstein has dedicated himself to the rhinos of Chitwan; he is the best friend they have ever had.”

That odyssey began in 1975, when, as a Peace Corps volunteer, Dinerstein first met his subject. It continued in his doctoral studies from 1984 to 1988, and it has absorbed him as a World Wildlife