

interaction that involves pathogens, vectors, and hosts. Power and Flecker investigate redundancy in plant viruses that influence fitness of individuals and, thus, potentially competition among plant species. By looking at the specificity of pathogens, vectors, and hosts, their analysis reveals that viruses tend to be dependent on a small number of vector species. Thus, loss of virus species would be greater from loss of vectors than from loss of plant hosts. I think that greater emphasis could have been placed in the volume on disease and parasitism as species interactions, especially since emerging infectious disease is considered to have a major effect on biodiversity, and vice versa. A complex issue that was not covered in this regard was loss of amphibian species, since the impact on other species would be more widespread when larvae and adults live in different habitats and have different trophic positions.

The book consists of 17 chapters in three parts: Using Experimental Removals of Species to Reveal the Consequences of Biodiversity Depletion; The Anthropogenic Perspective; and Linkages and Externalities. The editors provide useful introductions to each of these sections and guide specialist readers to papers of interest. Community ecologists, ecosystem ecologists, and evolutionary biologists can benefit from the volume by encountering new perspectives. Conservation biologists will understand better the difficulties that underlie potentially contentious answers. Nevertheless, this book will accelerate research at the interface of basic and applied ecology. This volume will undoubtedly be used in graduate seminars that will attract students from different disciplines.

LEONARD A FREED, *Zoology, University of Hawaii, Honolulu, Hawaii*

REPRODUCTIVE SCIENCE AND INTEGRATED CONSERVATION. *Conservation Biology, Volume 8.*

*Edited by William V Holt, Amanda R Pickard, John C Rodger, and David W Wildt. Published by Cambridge University Press, Cambridge and New York, in association with The Zoological Society of London. \$110.00 (hardcover); \$40.00 (paper). xv + 409 p; ill.; index. ISBN: 0-521-81215-1 (hc); 0-521-01110-8 (pb). 2003.*

This volume is based on a symposium held in 2000, and includes a remarkable diversity of contributions. The 25 chapters by 54 authors are organized into the following sections: Introduction (one paper), Reproduction and population viability (seven papers), Reproductive techniques for conservation management (five papers), Integrated conservation management (seven papers), Reproduction science in non-mammalian species (four

papers), and Conclusions (one paper). As implied by the title of the penultimate section, the emphasis throughout most of the book is on mammals, but it also includes reviews on birds, reptiles, amphibians, and fish.

As one might expect, the volume contains contributions on behavioral barriers to reproduction in captive populations, ultrasound methods for monitoring reproductive status, embryo technologies, fertility control, and genetic resource banks. But, in addition, I was delighted to discover reproductive science written broadly, with chapters on genetics, demographic structure of populations, and components of fitness. The quality of contributions varies enormously, with some chapters being general reviews that offer no new material or insight. At the other extreme, there are some informative and thoughtful synthesis chapters that make the book well worth its purchase price.

For me, one of the most useful chapters was the brief review of the genetics and conservation ramifications of the major histocompatibility complex (MHC) by Philip Hedrick. The MHC contains many genes that influence fitness by their effects on the immune system. Pedigree management in captive populations can minimize kinship and help to retain MHC diversity, and as we learn more about particular alleles in the MHC, more specific breeding programs can be designed.

The three chapters on fertility control for "problem" wildlife do not alleviate my skepticism about the practicality of such methods. Contraceptive vaccines, hormone treatments, genetically modified viruses, and sperm antigens are among the techniques under study. Delivery systems have been problematic, and the various methods can be highly invasive, prohibitively expensive, and require persistent programs to maintain reduced reproduction at the population level. As of yet, we do not have safe, cost-effective methods of birth control for wildlife that can be used for population control.

MARK S BOYCE, *Biological Sciences, University of Alberta, Edmonton, Alberta, Canada*

CHAOS IN ECOLOGY: EXPERIMENTAL NONLINEAR DYNAMICS. *Theoretical Ecology Series.*

*By J M Cushing, R F Costantino, Brian Dennis, Robert A Desharnais, and Shandelle M Henson. Academic Press. Amsterdam and Boston (Massachusetts): Elsevier Science. \$65.00. xiv + 225 p; ill.; index. ISBN: 0-12-198876-7. 2003.*

This is a marvelous book that discusses a series of theoretical and empirical explorations that I believe will go down in history as benchmark studies in the development of ecology. I have one very strong critique, which I will save for the end of this