



## **Wildlife Disease and Health in Conservation.**

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## BOOK REVIEW

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**Wildlife Disease and Health in Conservation.** Edited by David A. Jessup and Robin W. Radcliffe. Johns Hopkins University Press, Baltimore, Maryland, USA. 2023. 468 pp. ISBN: 9781421 Edited by 446745; eBook ISBN: 9781421446752. US\$64.53 hardcover/US\$45.17 eBook.

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### *Review by Logan Thomas and Walter Cook*

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Like many fields, wildlife health has developed significantly in the last 25 yr. Uniquely, the field has incorporated new host and microbial species (and new genera, families, classes, and even phyla!) and has taken on greater significance both for conservation and human health. Indeed, one could state that there has been a revolution in the appreciation and understanding of wildlife health. Such is the backdrop for *Wildlife Disease and Health in Conservation* edited by David A. Jessup and Robin W. Radcliffe.

Though not expressly a book about One Health, the concept is enforced multiple times. To us, this text has an underlying message: As stewards of our planet, humans must understand a disease system before, during, and after altering dynamics intended to achieve calculated results (and carefully assess what shapes our desires and objectives in the first place). The unintended consequences of the Anthropocene are highlighted throughout the book: Each section uses history and concepts from disease ecology to illustrate the challenges of emerging and classic threats to wildlife health, and consequently to population sustainability and to One Health. Likewise, the book emphasizes the value

and role of the North American model of wildlife conservation and revisits many of the leitmotifs of Radcliffe and Jessup (2022). Lessons are clear: Many wildlife health issues are direct results of human intervention or mismanagement, and humans are obligated to attempt to rectify the damage they caused. This text challenges one to grow through examination of personal natural resource management perspectives in the face of wildlife health issues.

Most texts covering wildlife disease are presented in chapters arranged by disease-causing agents (for that matter so are most texts on domestic animal disease). Here, the editors have arranged their book in five sections, each centered on specific categories of host taxa, or (in the case of the fifth part) diseases shared across species and geography. Thereafter, individual chapters focus on a particular disease or health issue in the given taxa. This organization makes for a more interesting read and allows one to easily focus on wildlife hosts of interest. The text goes beyond traditional species and agents, including chapters on health issues of coral reefs; sea stars; environmental contamination events; the role of waterfowl in developing broader wildlife health surveillance techniques; and evaluating the need for, and assessment of, appropriate biosentinels. Historical descriptions of wildlife disease management challenges are used to contextualize the system described in each chapter. We feel that this assists the reader to easily appreciate the complexity of integrating science into the sociopolitical environment underlying management actions, which is one of the explicit objectives of this unique presentation.

Chapters are written by well-recognized experts in the subspecialty they describe. The book is skillfully written, scientifically accurate, and provides the most up-to-date information available. Photographs and photomicrographs are of excellent quality and the artistic drawings are a wonderful supplement to the material. The structure of each chapter is consistent, yet sufficiently flexible given the breadth of the content within and across sections. The illustrations are each unique, memorable, and intuitive, but densely informative. Merely reviewing the illustrations will affect readers' understanding and perspectives of wildlife disease and One Health, plus also will probably prompt them to review the text more deeply for their specific needs.

Although the written text may be too technical for managers and others not well-versed in disease, the drawings and most of the photos will be helpful and comprehensible to lay readers. In addition, the preface, introduction, and conclusion chapters are excellent summaries of current issues in wildlife health. These chapters can be read, understood, and appreciated by those with little disease background, and are an excellent foundation for managers or others concerned with conservation issues.

Likewise, we feel the scientific material is too advanced for most undergraduate students but believe that wildlife disease graduate and veterinary students should be able to comprehend the material. In fact, we intend to incorporate the text into courses for these students. Often, even students in some advanced programs of medicine and ecology find it difficult to grasp broad, historic concepts crucial to wildlife disease ecology. In this book, however, the artistic nature of the material, as well as the use of multiple examples from various disease systems, should effectively solidify messages needed for developing students and professionals alike.

The book is not comprehensive. Some significant diseases are omitted (e.g., anthrax) and there is almost no coverage of parasites proper except when they are vectors of other

covered diseases. However, the book does not claim to be all-encompassing and expressly offers a deep dive into selected disease and health issues to illustrate the importance of health to wildlife populations and the role of humans in maintaining or degrading it.

Each component of the epidemiologic triad (host, disease agent, and environment) can change at different biologic timescales and several chapters explicitly (others implicitly) discuss how this may complicate and mask wildlife disease threats. In the conceptual dance between human appreciation and the importance of wildlife diseases in shaping ecosystems, humans are simply a beat out of step (sometimes two or three!). The text reveals that when ecosystems are shrouded by political or economic interests or disregarded because of unscrutinized cultural practices, long-lasting damage may occur. The thematic repetition of natural resource stewardship is appreciated and achieved through practical One Health perspectives and their role in positive ecosystem-level impacts. The authors illustrate the importance of framing societal objectives around ideals and input of experts from both natural resource and anthropocentric perspectives. The elusive nature of the most pertinent and effectual questions for One Health poses a challenge to unraveling the intricacies of emerging diseases and is reflected throughout the text.

This book provides a nuanced understanding of wildlife diseases, their dynamics, and the challenges in implementing effective management. Ecologic stories in the text demonstrate that human "progress" reflects failure to understand that success cannot be achieved without regard for the rhythms of biologic change governing the natural world. This work recognizes the importance of respecting the North America model of wildlife conservation, particularly as it concerns wildlife disease management. This recognition influences human capacity and inclination to be effective stewards. The book illustrates how the health of all species, not just the charismatic megafauna, is important

for conservation and ultimately for human health. Consequently, this contribution deserves a spot on the shelf (be that physical or electronic) to mark a much-needed conceptual redevelopment of the relationships between natural resource stewardship, One Health, and the expanding horizons that encompass wildlife health.

#### LITERATURE CITED

Radcliffe RW, Jessup DA. 2022. Wildlife health and the North American model of wildlife conservation. *J Zoo Wildl Med* 53:493–503.

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