

Adaptive Environmental Management: A Practitioner's Guide

Allan, R. and Stankey, G.H. (eds). 2009
Springer, Dordrecht and CSIRO Publishing,
Collingwood, Victoria. 368 pp. Paperback
ISBN 978-0-643-09690-5
RRP AUD \$120

MIKE CALVER¹

AS Stankey and Allan explain in their concise but informative introduction, "Adaptive management is characterized by both a compelling and intuitive simplicity (we learn by doing) as well as a growing sophisticated and elegant theoretical discourse." It offers the promise of using policy implementation to improve understanding of natural systems and thereby to direct future changes to policy and practice. The challenge for managers is to identify the operational practicalities that lie between the attractive concept and the theory. The aim of this book is to examine that challenge through case studies of the real-world application of adaptive management in a range of settings, including examples relevant to managers, policy makers and environmental scientists. The approach is not prescriptive, but rather to reflect on experience as a guide to future practice.

The editors assembled a diverse team of contributors able to offer insights into social, political and scientific considerations. It was refreshing to see contributions from experienced authors advanced in their careers, as well as current students, recent graduates and others richer in life experience than traditional qualifications. The authors and case studies also represented a wide range of countries: including, Canada, Australia, New Zealand, the USA and Europe, reflecting on applications in a range of

aquatic and terrestrial systems. If there are gaps, they lie in examples from developing countries and marine systems.

The content is organized effectively into five parts: understanding adaptive management, varying contexts, tools for adaptive management, the importance of people and a conclusion. Readers short on time but seeking a general understanding of adaptive management will benefit from the first and last parts, which are very successful in introducing the concepts and synthesizing the insights from individual chapters respectively. The chapter titles and abstracts are informative for those wishing to "cherry pick" papers on specific concepts or systems. There are also informative boxes after several chapters that explore important concepts concisely. The box "Words matter" would certainly elicit an enthusiastic cheer from a colleague of mine who has long argued the importance of language in discussing environmental issues. Many chapters are illustrated by effective black and white line drawings or photographs (for example, the excellent photographs showing vegetation recovery after camel exclusion on pp. 137–138), although the odd photograph was, in my opinion, too lacking in contrast to be useful. References are listed at the end of each chapter, which is very handy for instructors who wish to place specific chapters on reserve in libraries for student reading. I found the index thorough and helpful. Those new to the adaptive management jargon might have found a glossary useful too.

This book certainly belongs in the libraries of tertiary institutions offering degrees in natural resource management or environmental science. It will also be a valuable asset to professionals involved in environmental policy, management or science.

Amphibian Biology, Volume 8

Heathwole, H. and Wilkinson, J.W. (eds). 2009
Surrey Beatty & Sons, Baulkham Hills BC, NSW
330 pp. Paperback
ISBN 9780980311334
RRP AUD \$96.00

FRANK LEMCKERT²

THE Amphibian Biology book series being edited by Hal Heathwole and associates is becoming a major series of volumes that promises to cover all aspects of the biology and management of amphibians around the world. Such a series is very timely given the major declines in amphibians through the end of the last century and the continued declines through the early part of this century. Volume 8 is the latest book in this series and is the first of two

volumes that provides coverage of agents implicated in declines that are thought to be associated with human actions. This volume is titled "Decline: Diseases, Parasites, Maladies and Pollution" and the related volume (Volume 10) will cover more direct human impacting activities such as fire, roads, landscape alteration and habitat destruction.

The first half of Volume 8 provides coverage of a range of recently recognized diseases of amphibians and includes detailed chapters covering viral and bacterial diseases, fungal diseases (especially chytridiomycosis) and Trematodes that cause declines and deformities. Also included in this group of chapters is a general discussion of amphibian deformities and another discussing the various factors that may influence susceptibility of different

¹School of Biological Sciences and Biotechnology, Murdoch University, Murdoch, Western Australia, Australia, 6150 m.calver@murdoch.edu.au

²Senior Research Scientist, Forest and Rangeland Ecosystems, Industry and Investment NSW (formerly DPI), PO Box 100 Beccroft, NSW 2119, Australia

species to diseases. I noted that there is some inclusion of information on the currently available options to treat diseases and people undertaking laboratory studies may find this information to be of considerable use. Interestingly, other types of parasites are not considered in this book, perhaps because Trematodes have been suggested to have been assisted in their effects on amphibians by human actions whereas others have not. However at least *Rhabdias* lungworms are now thought to be introduced to Australia, probably with the cane toad and may be having a detrimental effect on the Australian frog fauna (and perhaps in some of the many other places cane toads have been introduced). Hence, I would think that other parasites would have been worth a look too as it is likely that human actions that reduce immune responses will assist other parasites in infecting amphibian hosts in the future and the further translocation of parasites seems inevitable.

The second half of the book deals with more direct impacting agents covering UV-B radiation, polluting agents in general, reactive nitrogen, pesticides, endocrine disrupters, petrochemicals and heavy metals, and acidifying agents. This relatively broad array of pollutants appears to be those most directly associated with a range of amphibian declines and the coverage of most is very detailed and comprehensive. The slightly odd chapter is the one on Petrochemical and Heavy Metals which is notably very short compared to all of the others and I thought could have included more detail. I would also have liked to have seen some consideration of de-icing agents as a threat to amphibians as there is a growing body of work suggesting that these chemicals can pose a significant threat where they are used.

There is also a final chapter that takes a relatively cursory look at climate change, providing a connection between changing climate and possible increases in the susceptibility of amphibians to illnesses. It too could have been longer in its treatment of the subject, although more may be written in this area in subsequent volumes. It may also have been better placed after the section on disease as it is the connection between possible depressed immune response and loss of ability to fight disease that is important, not so much the effects of pollutants.

I enjoyed reading this book, but the information presented is necessarily quite detailed and complex in many instances and I think it will likely take most readers some effort to get through the technical areas. Hence, not all of the book will appeal to every reader, but this is to be expected with such a work. I was very pleased to see authors from a range of countries included as many books tend to be dominated by North American research and researchers.

As in just about all books, there is the odd technical quibble with the presentation. My main point of issue, albeit still minor, is the use of only black and white photographs within the book. This is sometimes a problem because the chapter authors have noted differences in colour in some figures of animals or histological sections. The black and white photographs do not provide useful contrast to see features such as increased redness on the underside of an infected frog or the different or increased staining of an area of epithelium with disease symptoms. Hence the value of the pictures is somewhat diminished and colour reproductions would have been far preferable. The use of different authors for different chapter is highly recommended to obtain the most expert information in each field covered. However, it did lead to a slightly odd situation of seeing one chapter highlighting the importance of Trematodes in deformities and declines which is then followed by a chapter that suggests that this threat is probably over-emphasised and over-rated.

All in all, this book provides a very useful guide and summation to a wide and sometimes eclectic range of processes currently perceived to be causing significant threats to amphibians and that have been influenced by human activities. These chapters provide a timely reminder of the increasing threat that human activities appear to pose to amphibian populations world-wide and provide also a timely warning that even common species in any group of animals may be seriously threatened through the introductions of novel disease agents or the widespread use of pollutants. It is certainly worth purchasing for anyone who has an interest in amphibian conservation.