

BOOK REVIEW

Biological Control: Global Impacts, Challenges and Future Directions.

Ed. Peter G Mason.

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The science of biological control, like most other scientific disciplines, is constantly evolving.

This has resulted in a number of publications on biological control including a range of textbooks (e.g. Heimpel and Mills, 2017) and books detailing regional successes and failures (e.g. Moran *et al*, 2011 and Julien *et al*, 2012). These books focus on the theory of biological control or biological control in specific areas of the world. The current volume being reviewed is, to my knowledge, the first book to present a truly global overview of all these factors into a single publication.

The first section of the book provides information on biological control programs and agents globally, including the diversity of biological control agents; conservation biological control; importation (classical) biological control; augmentative biological control and unintentional biological control, which is defined as the accidental introduction of natural enemies including both arthropods and pathogens, including some which may have already been under evaluation for their future potential.

The second section discusses biological control in the 21st century with chapters on benefits and risks; regulatory challenges; access and benefit sharing, focussing on the Convention on Biological Diversity and the Nagoya Protocol and their implications for biological control; and biological control and climate change. The impacts of current and projected climate change provide ongoing debate amongst biological control practitioners, with this chapter clearly outlining various aspects of current knowledge whilst pointing out that there is still a lot to be learnt especially regarding integration between studies. The chapter on the Convention on Biological Diversity is especially welcomed here as there is often a significant knowledge gap in this area including the somewhat grey area of “subsequent commercialisation”.

The third section discusses socioeconomic aspects of biological control. There have been a number of economic assessments of biological control programs, for example Page and Lacey (2006). These tend to focus on the cost/benefit analysis; however, this current volume includes analysis of public perceptions of biological control and the related unrealistic expectations often experienced. Biological control is a public interest science which is usually

funded by public money and often conducted on public lands, so public support is essential for its long-term success. However, in recent years the science has faced increased scrutiny and regulation in a risk adverse society so getting the correct message out is paramount. Also discussed are the economic impacts of biological control both positive and negative and the resultant uptake of biological control based on these parameters.

The fourth section presents detailed descriptions of biological control efforts around the world and highlights important successes and failures. Once again, this book is the first I am aware of which gives a truly global overview of all these programs and includes control of weeds, arthropods, other invertebrates and vertebrates. This section takes a critical look at biological control and includes many case studies from each region. Where failures have occurred, it presents reasons for these failures and the possible way forward.

The fifth section outlines future prospects for biological control including integrating biological control into pest management programs and how biological control can contribute to conservation science and assist in the preservation of biodiversity. One chapter discusses biological control in terms of evolutionary ecology and argues that invasion biology can guide research into factors important in predicting biological control success as well as challenges to discovering and developing new agents and modern approaches to assessing new agents for introduction/commercial production.

This is an extremely professionally written and edited body of work which is obviously the product of countless hours of input from a wide range of contributors, which reads like a who's who of biological control. Because of the variety of contributors, individual chapters have slight variations in style, representing their authors, but this in no way detracts from the quality of the publication.

I thoroughly endorse and recommend this book to all practitioners of biological control science and anyone who is interested in furthering their knowledge on this fascinating subject.

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(Disclaimer: I have no connection to the publisher, editor or contributors to this volume and have received no financial inducement for my comments.)

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