

Large Herbivore Ecology, Ecosystem Dynamics and Conservation

K. Danell, R. Bergstrom, P. Duncan and J. Pastor (eds). Cambridge University Press, Cambridge, 2006. 506 pp. Price AUD\$130. ISBN-13 978 0 521 53687 5.

Greater than 50% of the earth's land is used for livestock grazing and a significant proportion of the remainder supports populations of wild herbivores. Through the direct and indirect effects of grazing, large herbivores play a major role in driving ecosystem structure and function. Most herbivores require active management within their habitats; some species are at the brink of extinction, while others occur at population densities that cause conflicts with humans and other land uses. As such, there is clearly a need for a comprehensive volume which reviews the latest research into large herbivores and their management suitable not only for researchers within the field, but also for the end-users of this research, managers. *Large Herbivore Ecology, Ecosystem Dynamics and Conservation* is an attempt to do just this, addressing the science behind action plans being used in the management of large herbivore populations and their associated habitats worldwide. The book comprises 16 chapters that broadly cover the ways in which large herbivores not only influence and modify their environments but are in turn affected by them, and the associated requirements for the effective management of both herbivores and ecosystems.

This volume's genesis was a workshop held in Sweden in 2002, 'The impact of large mammalian herbivores on biodiversity, ecosystem structure and function', which brings me to what I believe is the major disappointment about this text. The stated aim of the editors was to bring together the extensive information about herbivores available from around the world. Regrettably this aim has been far from achieved; there is a biased focus on northern hemisphere ungulates, and in particular, there is a lack of information on the significant marsupial herbivore assemblage of Australasia. This is unfortunate for at least two reasons. First, marsupial herbivores (macropods) can be considered good ecological analogues of eutherian herbivores (ungulates) in many respects, and a chapter focused on direct comparisons of the ecology and management of these two groups would have provided the reader with a broader perspective. Second, Australia's tropical savannas have recently been recognized to be of global significance owing to their large size and relative ecological integrity in comparison to similar habitats elsewhere in the world.

Therefore, knowledge about this region and its herbivores should have been a priority. This oversight by the editors cannot be attributed to a lack of data, as there is a large amount of information available concerning macropod ecology and management, from the classic studies of Caughley to more contemporary work.

Having said this, there are some excellent contributions within this book. Chapter 1, 'Large herbivores across biomes', presents a clear, albeit, brief review of the major herbivore communities globally, providing a good entry point to the following chapters. Chapter 12, 'Modelling of large herbivore – vegetation interactions in a landscape context', reviews different modelling approaches to understanding the often complex interplay between herbivores and their environment. This complexity is tackled in a description of the SAVANNA ecosystem model, but if anything, this chapter highlights just how parameterized these models can become. It is clear that other approaches which can deal with the limited knowledge that often exists for many species and their associated habitats are required. 'Effects of large herbivores on other communities', Chapter 13, was an enlightening read, drawing attention to the need for studies of the direct and indirect effects herbivores can have on ecosystems, beyond simply their effects on plant communities. It also serves to highlight the lack of grazing studies that have been conducted across multiple spatial and temporal scales. Lastly, Chapter 15, 'Restoring the functions of grazed ecosystems', is excellent. This chapter illustrates well the role that large herbivores can play in either habitat restoration or function and in providing goods and services. In one of the few sections which specifically addresses an Australian issue, Iain Gordon outlines the issues associated with grazing (such as water infiltration and run-off) in northern Australia's semiarid savannas. Gordon explores the possible ways forward, whereby reduced grazing pressure does not need to equate to reduced economic productivity.

In conclusion, this text is very informative and brings together some excellent research in an accessible form that will be of general interest to researchers and managers alike. However, I question its overall utility for Australian researchers, with some noted exceptions, owing to its biased focus on northern hemisphere ungulates.

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