

BOOK REVIEW

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Review of *Wild Rangelands: Conserving Wildlife While Maintaining Livestock in Semi-arid Ecosystems* edited by Johan du Toit, Richard Kock and James Deutsch

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Book details

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'Wild rangelands' compiles 15 scholarly chapters which speak to the challenges of conserving biodiversity in the face of domesticated livestock production. Conservation of biodiversity is its clear and stated focus, but it explores conservation in the context of landscapes that support millions of livelihoods. To build this case 'Wild rangelands' compiles seven case studies, across which the role of humans varies from between coexistence to a form of co-dependence. The cases are from Australia, the American west, Mongolia and trans-Himalayas, and two from eastern Africa. These case studies are first framed by six overarching chapters, covering internationally relevant topics - resilience, scale mismatches, shrub encroachment, disease, carnivore-human conflict and economic incentives for conservation. A concluding chapter provides a synthesis of the challenges and solutions.

While the chapter styles vary according to authorship, I found scale, fragmentation and livestock-wildlife-human interactions to be key themes that cut across the various case-study and overarching contributions. Because these themes bind the chapters, they are a useful frame to review the book's overall contribution.

The large (and long) scales associated with rangeland systems resonated throughout 'Wild rangelands'. Johan du Toit's chapter on addressing mismatches between livestock production and wildlife conservation is to my mind one of the stronger contributions (Chapter 3). It comprehensively illustrates the inextricable links between institutional scales and the scales of ecology processes. Natural resources in rangelands vary wildly and unpredictably over time and across space. Hence, species that rely on these uncertain resources need to move and adapt over scales that can sufficiently smooth out resource availability. One implication is that conservation cannot be achieved effectively within national park boundaries, but instead needs to be conceptualised at larger scales. Johan du Toit also illustrates the multi-scalar nature of conservation - whereby

global drivers can cause local conservation pressures and/or local conservation can have consequences beyond the spatio-temporal scale of the problem.

Chapter 8 unpacks this idea in the Australian context (Stephen Garnett and colleagues). Biodiversity conservation requires active management of weeds and pests. Pastoral enterprises can collectively provide management on an appropriately large scale, but Chapter 8 argues that Australian grazing management practices also need to refocus towards environmental stewardship - where environmental conservation is incentivised such that it takes precedence over production. The scale of management is one issue. The scale of wildlife movements is another. For example, in Chapter 11, Charudutt Mishra and colleagues, explore the Tibetan plateau where ungulates exist outside of conservation areas.

Rangeland fragmentation interacts with and contributes to scale mismatches. Fragmentation of rangelands is driven by over-grazing and degradation by domestic stock, and also fencing of both wild and domestic stock in order to control diseases. For example, Chapter 10 (Ricardo Baldi and colleagues) discusses how Patagonian guanaco are threatened because ranching isolates its populations. Chapter 11 (Charudutt Mishra and colleagues) similarly notes that surviving wildlife tends to exist in isolated pockets surrounding rural and urban land uses. Chapter 9 (Thomas Fleischner) writes not just about fencing's fragmenting impact for native grazing species in western America but also espouses fencing as a tool to exclude domestic stock from sensitive ecosystems.

The third permeating theme is on the livestock-wildlife-human interface. Chapter 5 (Richard Kock and colleagues) explores disease control. While this chapter is based on African case knowledge, many of the ideas are more broadly relevant. Chapter 6 (Alexandra Zimmermann and colleagues) explores carnivore-human conflict. And the Chapter on resilience (Chapter 2, Brian Walker) provides a cross-scale framework for thinking about social-ecological systems as moving targets. Within the case-study chapters, livestock-wildlife-human interfaces are also well represented. For example, weeds and feral animals have negative impacts on both domesticated livestock and native species in Australia's north (Chapter 8). Chapter 4 (Steven Archer) provides an overview on shrub encroachment, which is signature to desertification and has implications for fire regimes and carbon cycling.

The book outlines challenges, but also discusses intervention points and solutions. Chapter 7 (Ray Victorine and Charles Curtin) argues that paying landholders to conserve biodiversity is an effective approach to achieve target outcomes. In the chapter, they also acknowledge imperfections, and also discuss a broader range of financial incentives for conservation. Beyond government interventions, tourism operations, NGOs and premium market revenues can all be structured to promote profit from conservation. In Chapter 14 (Michael Norton-Griffiths and Mohammed Said) a counter example of financial incentives is presented, whereby attractive profits are resulting in agricultural landscapes replacing grazing practices. Whatever financial incentives are at play, the scales of the institutions which bear influence on wildlife management need to be re-considered, if, as suggested in Chapter 3, the aim is to focus more on ecosystem services and less on livestock commodities.

One view which is generally under-represented in the book, but is explored nicely in Chapters 12 (Katie Scharf and colleagues) and 13 (Katherine Homewood and Michael Thompson), is the need to both link conservation objectives with development goals

and, in particular, to ensure a community-based approach empowers locals with meaningful livelihoods. Chapter 12 reviews Mongolia's recent trend towards community-based natural resource management. Chapter 13, more bleakly, explores how recent state and enterprise relationships are disempowering locals. In comparison to other contributions, Chapters 12 and 13 pay more attention to property rights and other local institutions, and this provides an analysis of conservation from the perspective of local resource users.

Pastoralists are fond of saying that livestock management is about managing forage (in Australia at least). 'Wild rangelands' takes the view that 'Wildlife management is actually people management', (p xxi). This reflects a view that sustainable livelihoods can be underpinned by incentivising conservation. In other words, managing for biodiversity in these social-ecology systems is about controlling the social actors. There is traction in this view, but others may hold that control over the social actors will lead to little if not well framed within the dynamics of the social institutions which govern resource use in rangelands. 'Wild rangelands' could have usefully applied additional attention to the social sciences. That said, 'Wild rangelands' provides an extensive and up-to-date treatment of challenges and issues for rangeland conservation, and the plight of those who rely on livestock for livelihoods is strongly drawn into both the case studies and the more conceptual chapters. Hence, 'Wild rangelands' will provide an informative and useful volume from a variety of perspectives.

Competing interests

The author declares that they have no competing interests.

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