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Book review

Conservation in Chilean Patagonia: Assessing the State of Knowledge, Opportunities, and Challenges Book Review; , in: J. C. Castilla, J.J. Armesto Zamudio, M.J. Martínez-Harms, D. Tecklin (Eds.) Springer International Publishing (2024). 533 p. ISBN: 9783031394072 (ebook)

Chilean Patagonia serves as a crucial global reservoir of biodiversity and a vital carbon sink, with its national parks storing nearly twice as much carbon per hectare as the Amazon rainforest. This vast region of highly intact ecosystems, with its extensive coastline and fjords, acts as a refuge for species and helps ecosystems withstand the effects of climate change, while also providing essential benefits like clean air and water (Fernández et al., 2025).

The publication of the book “*Conservation in Chilean Patagonia: Assessing the State of Knowledge, Opportunities, and Challenges*” marks a milestone in South American environmental research. This monumental volume, the collaborative effort of 68 experts, directly confronts a paradoxical and critical gap: despite being one of the planet's last predominantly intact ecosystems, Chilean Patagonia has lacked a consolidated, scientific, and region-wide assessment of its conservation status. The region, characterized by its 100,000 km of intricate coastline, ancient glaciers, vast peatlands, and complex archipelagos, is not merely a scenic marvel but a vital global reservoir of biodiversity, a significant carbon sink, and a living repository of biocultural heritage. However, its relative isolation is rapidly eroding under the pressure of anthropogenic activities. This book emerges not as a passive academic exercise but as an urgent, evidence-based call to action. It serves as both a foundational primer and a strategic roadmap, its mission amplified by its open-access status, ensuring that critical knowledge reaches policymakers, local communities, and conservation practitioners worldwide.

The book's architecture is a testament to its core philosophy: that effective conservation requires a holistic, interdisciplinary approach. It is systematically organized into seven parts, each building a compelling case for a conservation paradigm that transcends traditional disciplinary silos:

- Part I: Synthesis functions as the strategic cornerstone. It moves beyond a simple introduction to articulate a powerful, overarching “Integrated Conservation Vision”. This section performs a crucial meta-analysis, diagnosing the state of scientific evidence itself—tracking its temporal trends, spatial distribution, and focus on various drivers of change. It immediately establishes the book's pragmatic intent by concluding with cross-cutting recommendations.
- Part II: Global Changes expertly contextualizes local threats within the framework of planetary-scale disruptions. It provides a rigorous assessment of climate change impacts and the insidious threat of invasive species, while also identifying region-specific “Emerging Global Changes,” such as the profound ecological implications of the proposed Austral Highway and the increasing frequency of Harmful Algal Blooms.

- Parts III & IV: Terrestrial and Marine Ecosystems form the ecological core of the volume. The terrestrial section provides deep dives into the representativeness of protected areas, the ecological integrity of pristine forested watersheds, and the critical roles of peatlands (as massive carbon sinks) and steppe ecosystems. The marine section is particularly formidable, delivering a comprehensive audit of coastal-marine protection and a frank, evidence-based critique of the impacts of fisheries and the expansive salmon aquaculture industry, detailing local effects like benthic eutrophication and the broader risk of ecosystem alteration.
- Part V: The Marine-Terrestrial Interface is a conceptual masterstroke. It correctly identifies the fjord and archipelagic systems as a unique ecotone where land and sea processes are inextricably fused, a perspective often missed in management plans that artificially separate these domains.
- Part VI: Freshwater and Cryosphere Ecosystems addresses components of the Patagonian landscape that are disproportionately important on a global scale. The dedicated assessments of freshwater ecosystems and the Patagonian ice fields are crucial, given their pivotal role in global sea-level budgets, freshwater supply, and as key indicators of climate change.
- Part VII: Socio-environments ensures the human dimension is woven into the fabric of the conservation narrative. It provides a sophisticated analysis of the relationship between conservation goals and Indigenous peoples, a systematic deconstruction of the primary drivers of ecosystem change, and a critical examination of tourism development linked to protected areas.

This volume distinguishes itself through several key contributions that redefine the understanding of Patagonian conservation.

- Baseline Establishment and Quantification: The book authoritatively establishes that over 50 % of the land and 41 % of the coastal-marine area in Chilean Patagonia is under some form of official protection. This quantification is not just a statistic; it provides an indispensable baseline for monitoring conservation efficacy, identifying systemic gaps, and advocating for the region's status as a global sanctuary.
- The Exposé on Salmon Aquaculture: The book delivers a systematic and unflinching analysis of the salmon farming industry, detailing its local-scale impacts (benthic eutrophication, chemical pollution, disease transmission, escapes of non-native species) and raising the alarm about its potential for regional-scale ecosystem alteration. This is presented as one of the most immediate and severe threats to the region's marine integrity.
- The Advocacy for “Integrated Conservation”: The most powerful and recurring theme is the compelling argument for a conservation model that seamlessly integrates terrestrial, freshwater, marine, and human systems. The book convincingly posits that the archipelagic nature of Patagonia makes this approach not just beneficial but fundamental to any lasting success.

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- A Bridge from Knowledge to Praxis: A defining feature of the book is its unwavering commitment to utility. Each chapter culminates in a section of “Conclusions and Recommendations,” transforming the work from a passive repository of information into an active and practical guide for policy formulation, management interventions, and priority-setting for future scientific research.

In conclusion, “*Conservation in Chilean Patagonia*” is an epoch-defining work that transcends the conventional boundaries of an academic text. It is a synthesis of unparalleled scope, a courageous assessment of imminent threats, and a visionary blueprint for a sustainable future. The editorial team have achieved a monumental feat, producing a volume that is as intellectually rigorous as it is urgently practical. By not only synthesizing a vast body of knowledge but also inviting critical reflection on its own construction and its potential for real-world impact, the book sets a new standard for what conservation science can achieve. Its interdisciplinary depth, combined with its unwavering commitment to generating actionable knowledge, ensures that it will become the mandatory touchstone for anyone—scientist, student, policymaker, or advocate—engaged in the vital task of preserving one of the world’s most significant and breathtaking wilderness areas. This book is not merely recommended; it is essential.

CRediT authorship contribution statement

Ali Reza Radkhah: Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Conceptualization. **Soheil Eagderi:** Writing – review & editing, Writing – original draft.

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