

Reservas de la Biosfera de Chile—Laboratorios para la Sustentabilidad [Biosphere Reserves in Chile—Laboratories for Sustainability]

Author: Price, Martin F.

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Reservas de la Biosfera de Chile—Laboratorios para la Sustentabilidad [Biosphere Reserves in Chile—Laboratories for Sustainability]

Edited by Andrés Moreira-Muñoz and Axel Borsdorf. Innsbruck, Austria and Santiago de Chile, Chile: Austrian Academy of Science and Pontificia Universidad de Chile, 2014. xvii + 321 pp. Print copies can be ordered via igf-office@oeaw.ac.at, at € 30.00. Free download at <http://www.mountainresearch.at/index.php/de/institut/veroeffentlichungen/79-institut/344-reservas-de-la-biosfera-de-chile.html>. ISBN 978-956-14-1390-0.

Chile has 10 biosphere reserves designated under the Man and the Biosphere Programme (MAB) of the United Nations Educational, Scientific and Cultural Organization (UNESCO). They are located throughout the country, from Lauca in the far north to Cape Horn in the extreme south, mainly in mountainous terrain. This beautifully illustrated book is the result of 3 years of collaboration between the institutes of geography of the Pontificia Universidad de Chile and the University of Innsbruck, as well as the Interdisciplinary Mountain Research Institute of the Austrian Academy of Sciences, with the support of the national MAB committees of the 2 countries.

Part 1 consists of 2 chapters. The first is a global introduction to the evolution of the concept of biosphere reserves, followed by discussion of the relevance of the concept in the contexts of sustainable development and globalization. Chapter 2 addresses Chile's biogeography and the extent to which it is represented within the country's biosphere reserves. The chapter begins by summarizing the country's ecoregions and biogeographical zones, focusing principally on their vegetation, and then presents a map and brief

description of the vegetation of each biosphere reserve.

Part 2, which comprises the majority of the book, has 10 chapters, each describing one biosphere reserve. While each chapter includes a map of the biosphere reserves, many illustrations, and a list of references, their structure and content vary considerably. The emphases include botanical characteristics and conservation, glaciological research, tourism, economic and sustainable development, and external pressures. This diversity of presentation undoubtedly reflects the great diversity of situations across these 10 parts of the country. However, it may also result from the fact that Chile's biosphere reserves vary in area from 10,366 to 4,884,513 hectares and are of 2 rather different types. The first are first-generation sites designated between 1977 and 1981 (Fray Jorge, Juan Fernandez, Laguna San Rafael, Lauca, and Torres del Paine), which continue to focus primarily on nature conservation, research, and education and do not conform to UNESCO's current criteria, established in 1996. The second type are more recently designated sites (as well as some extended in recent years); these include the three zones—the protected area(s), a buffer zone around the area(s), and an outer “transition area” with a particular emphasis on sustainable development—which, since 1996, each biosphere reserve has been expected to include. Thus, each of these chapters can be principally regarded as a useful and attractive introduction to a specific biosphere reserve accompanied by a set of references to published research. However, comparison between the chapters is not easy and is further hindered by the lack of an index.

Part 3 consists 2 chapters. The first, complementing the first chapter of the book, takes a global overview of the concept of biosphere reserves as “laboratories for sustainability.” This well-referenced chapter places biosphere reserves in international contexts, such as the International Geosphere-Biosphere Programme and the European Landscape Convention,

and includes examples from Austria, France, Germany, and other countries in Ibero-America before discussing the Chilean situation and how its biosphere reserves could move toward the goals of the more recent policy documents of the MAB. The final chapter focuses on education for sustainability, given that the book was published at the end of the United Nations Decade for Education for Sustainable Development. Similar to the previous chapter, this presents global literature and then relates it to the specific situation of Chile's biosphere reserves. It includes an interesting map of the schools within the reserves, which clearly shows that, with the exception of Fray Jorge, the first-generation biosphere reserves have very low populations (1 or 2 schools), while 3 of the recent sites have more than 100 schools. The book ends with a homage to Pedro Araya Rosas, a key player in the MAB who died while the book was in preparation.

As the preface to the book notes, it is aimed at a wide variety of audiences, including scientists, park managers, and tourists. It also provides interesting introductions to the concept of biosphere reserves and their potential application, although there are clearly many opportunities in Chile to move from concept to full application, including the expansion of the 5 first-generation sites to include a full complement of zones. Readers will obviously benefit most from the book if they can read Spanish, but the wonderful maps and photographs, all in full color, as well as the lists of references, mean this is a valuable reference for anyone who is interested in these attractive parts of Chile.

AUTHOR

Martin F. Price

martin.price@perth.uhi.ac.uk
Centre for Mountain Studies, Perth College,
University of the Highlands and Islands, Perth
PH1 2NX, United Kingdom

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