reviewed, with complete references and web links where available. A basic typology identifies whether the tools were specifically related to protected area systems, were considered to have interesting elements relevant to rapid assessment of protected area impacts, or were deemed less relevant for this use. Succinct summaries of those considered most useful are also included. It thereby serves as a helpful source book for further research into a range of tools and methods.

From this review a framework methodology is presented that outlines key steps in the development of a rapid social impact assessment process. This framework in itself is a useful aid to practitioners and researchers in making decisions on what approaches and methods to use. The intention of the Social Assessment of Protected Areas initiative is that this publication will act as a working document for a future workshop to develop draft guidelines for rapid assessment methodologies. These would then be tested and adapted across a range of different locations.

This on-going initiative must surely be welcomed in the current context for biodiversity conservation in which international protected area policy emphasizes the need to address poverty and governance issues. The increasingly heated debate over the potential implications of avoided deforestation schemes on indigenous and local community rights makes it even more timely. While this review of methodologies is a useful first step, I await the output of the next stage of the initiative with bated breath.

Helen Schneider Fauna & Flora International, Jupiter House, Station Road, Cambridge, CB12 2JD, UK
E-mail helen.schneider@fauna-flora.org

Arguments for Protected Areas: Multiple Benefits for Conservation and Use edited by Sue Stolton and Nigel Dudley (2010), 296 pp., Earthscan, London, UK. ISBN 9781844078806 (hbk), GBP 85.00; 9781844078813 (pbk), GBP 24.99.

Protected areas have been around for thousands of years in one form or another. Modern protected areas, what the authors call 'one of the best and most revolutionary ideas of the 20th century' began in the USA in the late 19th century. The number of formal protected areas has grown rapidly to cover 12% of the globe and there are ongoing efforts to achieve even fuller coverage of the world's habitats and species, in particular marine areas. At the same time areas conserved by indigenous and local communities, often over centuries, are being recognized and supported.

Despite this, protected areas are in a crisis. They have been historically defined by their role in conserving wild animals and plants. Indeed, they are the crown jewels of the conservation endeavour. Unfortunately, they are failing to deliver and biodiversity is increasingly under threat. Many protected areas still exist only on paper, have inadequate resources for their management, and are threatened by illegal encroachment and resource use or by legal degazettment and economic activities such as mining.

As if that were not enough, protected areas are highly contested. The previously broad consensus on their value has broken down. Protected areas are resisted by industries, which see them as impediments to profit making, by governments that believe they limit economic development, and by communities who experience them as infringements on their rights. In short, protected areas are in trouble and the publication of this book is timely. The arguments for protected areas are not being made strongly enough or clearly enough, and this readable book seems destined to change that.

An introductory chapter describes how natural environments support human well-being, discusses the values that provide this support, and proposes the integration of these values into understanding of protected areas. A series of chapters follows, each discussing a specific value, benefit or service that protected areas provide or could potentially do so. The values covered are wide ranging and, although not new or surprising, most are not being actively managed for. This book, by presenting in a clear and accessible fashion 12 values of protected areas provides 12 arguments that can be made to local communities, governments and the international community for investing in protected areas. Not all values will be present in all protected areas but the idea that multiple benefits can be expressed in one place and time is important.

Considerable thought and planning has gone into the design of this book. The reader is led through a common argument for the different values, made possible as each chapter has the same structure. A short personal essay suggests the essence of the value to be discussed and smoothly leads the reader into the more technical sections that follow. The Argument section describes the value and the benefits it confers, the Current Contributions section describes how and to what extent these values are conserved and delivered by protected areas, the Future Needs section describes steps required for protected areas to really engage with the value, and the Management Options section indicates how this can be achieved. A range of case studies and boxes brings home the arguments through tangible examples in which protected areas are delivering the broad range of values covered by this book.

The consistency and readability of the book is unusual in an edited volume, perhaps because the editors are also authors on all but one chapter. The broad grasp of the issues is just the kind of understanding that conservation practitioners must emulate. I commend this book to protected area managers, policy makers and all those arguing the case for protected areas and conservation. Students will find it invaluable as an introduction to protected area management. There is, however, some unevenness that is slightly disconcerting.

Chapters on the relationship between religion and protected areas and on the interactions between protected areas and cultural diversity introduce readers to a new way of thinking about conservation. By describing non-material, culturally based values, these chapters open a discussion of the relativity of values and question the current domination of scientific rationality and neo-liberal economics in conservation thinking and practice, and provide compelling arguments for looking at protected areas in a radically new way. The authors write that '. . .almost all protected areas are also cultural landscapes, with cultural significance for one people or another.' Failure to design and manage them accordingly has pitted conservationists against communities in an entirely negative and unnecessary way. Understanding protected areas as cultural entities would help resolve many of conflicts bogging down so many protected areas while supporting the conservation of cultures threatened by the same processes threatening biodiversity. It would also, as the authors note '. . .certainly help improve public support for conservation.' But despite signalling the paradigm-shifting importance of a values-based approach to protected areas, the rest of the book has the traditional focus on economic values. Even in chapters on health, tourism and human well-being, where a discussion of cultural values is clearly relevant, they are hardly noted. The resulting dependence on economic arguments suggests a degree of desperation pushing the authors away from the more radical reappraisal of protected areas that is perhaps needed.

Finally, and strangely, the chapter on biodiversity is relegated to the end of the book. If this was intended to emphasize one of the most important arguments for protected areas, one that responds to both economic and values-based perspectives, and surely the most important driver of conservation practice both currently and historically, it does not succeed. The degree to which protected areas and their role as havens of wild animals and plants for humankind, both living and future generations, have become contested, is reflected in the apologetic way biodiversity is treated in this book.

Mark Infield Fauna & Flora International, Bali, Indonesia
E-mail mark.infield@fauna-flora.org

Mapping Species Distributions: Spatial Inference and Prediction by Janet Franklin (2009), xviii + 320 pp., Cambridge University Press, Cambridge, UK. ISBN 9780521876353 (hbk), GBP 70.00; 9780521700023 (pbk), GBP 35.00.

The prediction of species distributions from survey data has been recognized as an important task for a variety of research, management and decision-support purposes. Species distribution models have been used to tackle many ecological questions and have also been used in areas of conservation and resource management that require detailed information on the distribution of organisms and the factors affecting these distributions.

This book introduces the theory and fundamentals of species distribution models and achieves an appropriate balance between the basic information needed by a student who has recently penetrated the complex world of distribution modelling and the deeper description of the various analysis methods that a more experienced researcher could go through. The literature on distribution modelling is voluminous and thus the 56 pages of references are a valuable resource. Additionally, Franklin makes effective use of tables and schemas to condense useful information, examples, study cases, references and data sources.

The book comprises four sections that reflect the modelling framework adopted. The first gives a background to the history and ecological basis of species distribution models, with examples that illustrate their applicability and the ecological and theoretical basis for understanding species' distributions. The historical references, however, prevail too much over the theoretical focus, and the discussion of the role of the ecological niche concept and related theories versus more dynamic concepts (such as source–sink dynamics, dispersal and biotic interactions) deserved more elaboration.

In the second section Franklin introduces the type, quantity and quality of data that we need for modelling species distributions. Advice is given on how to obtain and process biological and environmental data. She also gives excellent examples of studies that have used different types of biological data (presence, presence–absence, presence–pseudo absence) from diverse sources, with distinct sample sizes, resolution and sampling methods. Most examples fall into two groups: studies based on designed surveys in small to medium geographical regions versus studies at the biogeographical scale using large pre-existing datasets from museums, collections or monographs, and making predictions over very large areas (subcontinental to global).

The third section is the core of the book, comprising an overview of the most frequently used modelling methods (regression, machine learning methods, classification, similarity and other methods for presence-only data). Franklin introduces the steps of statistical modelling using Austin's scheme: (a) conceptual model formulation, (b) statistical model formulation, (c) calibration and (d) evaluation. Despite the inherent difficulty in fully exploring each step, we found this a useful guide to formulate, fit and test distribution models. We particularly enjoyed the section that deals with spatial autocorrelation in species distribution data, its consequences for the results of species distribution models and how to deal with correlated predictor variables. Spatial autocorrelation is often an unresolved issue in most species distribution model applications—frequently ignored or regarded as a complex statistical problem. However, Franklin shows that methodological innovations provide a variety of possibilities for post-experimental (statistical) corrections that allow inference in the presence of autocorrelation.

The fourth section deals with model evaluation and a general overview of how some problem-related factors (species attributes, spatio-temporal scale of the data and the choice of modelling techniques) will affect the implementation of species distribution models. This section is informative but we missed a more in-depth discussion of how species distribution models can be used to test or falsify research hypotheses or aid in question-oriented conservation management.

This is a very useful book that we commend to anyone interested in species distribution models. It will be a good introduction for many and a useful reference for others, and is also a guide to the wide literature on the subject. This is probably the best book available on species distribution models. However many as yet open questions will require more intensive research and discussion as species distribution models keep evolving as useful tools in ecological and conservation applications.

A.Y. Sánchez-Mercado & J.R. Ferrer-Paris Unidad de Biodiversidad, Centro de Ecología, Instituto Venezolano de Investigaciones Científicas, Apartado 20632, Caracas 1020-A, Venezuela
E-mail asanchez@ivic.gob.ve