"resource identity" effects and "functional diversity" effects, among others. The problem with all of these terms is that they, like "ecosystem function," are too nebulous to form that basis of a predictive science. My guess is that they will not form the basis of a true resolution of ecosystem complexity.

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REMOTE SENSING FOR ECOLOGY AND CONSERVATION: A HANDBOOK OF TECHNIQUES. *Techniques in Ecology and Conservation Series.*

By Ned Horning, Julie A. Robinson, Eleanor J. Sterling, Woody Turner, and Sacha Spector. *Oxford and New York: Oxford University Press.* $125.00 (hardcover); $60.00 (paper). xxvi + 467 p.; ill.; index. ISBN: 978-0-19-921994-0 (hc); 978-0-19-921995-7 (pb). 2010.

There are many things to like about this book and, as usual, a few shortcomings. There is definitely a great need for this volume as the use of remote sensing for ecological or conservation-oriented applications is definitely on the rise. The organization of the book is unique and useful, and the content substantive. In particular, the geographic diversity and graphic quality of the figures is outstanding. The great variety of applications described will also make this publication useful to the practitioner, from wetlands to fire, coastal environments to sea surface temperature, from fire to the atmosphere. I also found the vignettes to be clear and applicable—a good addition to the volume. However, there are some things to be aware of before purchasing this volume. Most notable, many important remote sensing "fundamentals" are covered only superficially, even considering the material in the appendixes. For instance, there is little depth to the discussion of automated classification methods, sensor design, and other typical topics included in remote sensing textbooks. This is not a violation of the purpose of this volume, but it is a limitation that readers should be aware of. This is much more of an "applications" book, and less of a scholarly treatise.

The authors state that their objective was to increase awareness about the opportunities for applying remote sensing to ecology and conservation. I believe that they accomplished that objective. This volume will not likely serve as the single textbook for a remote sensing class without significant supplemental materials, but it will shine a bright light on the opportunities for serving the biological and conservation communities through remote sensing.

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MAPPING SPECIES DISTRIBUTIONS: SPATIAL INFERENCE AND PREDICTION. *Ecology, Biodiversity and Conservation.*

By Janet Franklin, with contributions by Jennifer A. Miller. *Cambridge and New York: Cambridge University Press.* $125.00 (hardcover); $60.00 (paper). xviii + 320 p.; ill.; index. ISBN: 978-0-521-87635-3 (hc); 978-0-521-70002-3 (pb). 2009.

In the last 15 years, many methods have been developed for the purpose of modeling species distributions (SDM). This book clarifies the differences among the various methodologies and types of data, and thus it should be very useful to practitioners of SDM.

The volume is structured according to ecological, data, and statistical models. Part I begins with a discussion of the meaning of different terms. The author adopts the convention that the term SDM can be applied to modeling potential distributions, actual distributions, habitat preference, and even realized niches. A deeper examination of the differences between these concepts, and how they affect modeling practice would have been helpful. However, the discussion about hierarchically nested factors and processes affecting distributions is comprehensive and clear.

Part II examines the different types of data used in the process of SDM. Species occurrence data is treated first (type of sampling, prevalence of occurrence data, spatial biases, and true-absence and pseudo-absence data), and then environmental data used in SDM (interpolated climatic data, elevation models data, remote sensing, landscape patterns, and the distributions of other species). This is a comprehensive and rather useful overview.

Part III is the core of the book. Eleven types of methods, classified in three somewhat arbitrary categories (statistical, machine learning, and others) are discussed. This chapter includes Web addresses to 20 implementations. Unfortunately, DeskTopGARP (the best implementation of the GARP algorithm) is missing. In the next chapter, written in collaboration with Jennifer Miller, a number of regression methods (Generalized Linear Models, Generalized Additive Models, and Multiple Adaptive Splines) are described. This chapter provides a clear and comprehensive explanation of techniques that use presence/absence data. Particularly valuable is the section on the problem of spatial autocorrelation. The next chapter examines machine learning methods. There is a good discussion of regression trees, followed by distance-based and other methods, including GARP and Maxent (very popular presence-only algorithms). A more thorough presentation of the mathematical derivation of Maxent, and about the way that DeskTopGARP combines different algorithms and allows uneven use of commission and omission errors would have been helpful. Niche Factor Analysis, an elegant tool for examining environmental

space is presented, and distance and envelope methods are also reviewed.

Finally, Part IV is dedicated to model evaluation and implementation, reviewing common statistics derived from specificity and sensitivity measures. This chapter ends with a discussion of the need to report the spatial structure of uncertainty and errors in the predictions.

This volume is well written, comprehensive, and provides excellent summaries at the end of every chapter. The literature review, without being exhaustive (an impossibility in this rapidly developing field), provides a very good entry to most of the key papers and applications. The book will be useful to novice readers as well as to more experienced ones who need to have a good summary of the field of species distribution modeling (sensu lato).

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CONSERVATION BIOLOGY

CLIMATE CHANGE, BIODIVERSITY AND SUSTAINABILITY IN THE AMERICAS: IMPACTS AND ADAPTATIONS. *Based on a symposium held in Panama City, Panama, 25-29 February 2008.*

> *Edited by Francisco Dallmeier, Adam Fenech, Don MacIver, and Robert Szaro. Published by Smithsonian Institution Scholarly Press, Washington (D.C.), in cooperation with Rowman & Littlefield Publishers, Lanham (Maryland). $59.95. xii + 183 p. + 16 pl.; ill.; index. ISBN: 978-0-9788460-7-7. 2010.*

This slender book is part of a two-volume collection of papers emerging from an international symposium in 2008 on Climate Change and Biodiversity in the Americas cohosted by Environment Canada and the Smithsonian Institution's Center for Conservation Education and Sustainability. This volume comprises eight papers on the science; a companion book contains the policy papers. Together with the Panama statement, the two volumes are intended to represent a continuation of collective attempts to build our adaptive capacity to climate change.

An introductory chapter provides the context and goals of the symposium and a review of species and ecosystem responses to climate change along with proposed adaptation and mitigation strategies. Most of the papers address responses of bird species or vegetation to altered climate conditions such as changing temperature and seasonality, stronger hurricanes, or increased snow melt. Two papers address the potential for linking carbon storage with biodiversity conservation and the role of secondary forests and forest plantations as restoration tools.

The questions elucidated by papers include the following: How useful is bird species richness as an indicator of climate change? How effectively can we predict responses based on species' natural history traits? How valuable is long-term baseline monitoring for assessing climate change impacts and future risks? What is the effectiveness of reforestation for biodiversity conservation and carbon cycling? What is the role of secondary forests and forest plantations as restoration tools? What is the response of desert vegetation to declining snow depth?

The papers underscore the importance of long-term monitoring to understand climate change response signals; predictive modeling for risk assessment; synergy at the local, national, and international levels; reforestation with native tree species; and ongoing research to understand climate change forcings and their impacts.

The Panama statement in the Appendix offers general recommendations and suggested adaptation solutions. The goal to reduce the rate of biodiversity loss by 2010 seems both vague and optimistic given the challenges that confront us and the uncertainties in our knowledge. The volume would have benefited from a synthesis of the information presented at the symposium to illuminate the state of our current knowledge and progress in each of the four symposium goals: review of baseline data and systematic observation networks; integrating knowledge about future changes; evaluating effectiveness of predictive modeling and decision support tools for developing of adaptation strategies; and establishing a framework for future collaboration.

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NATURE'S MATRIX: LINKING AGRICULTURE, CONSERVATION AND FOOD SOVEREIGNTY.

> *By Ivette Perfecto, John Vandermeer, and Angus Wright. London (United Kingdom) and Washington (D.C.): Earthscan. $136.00 (hardcover); $34.95 (paper). xiii + 242 p.; ill.; index. ISBN: 978-1-84407-781-6 (hc); 978-1-84407-782-3 (pb). [First published in 2009.] 2010.*

This volume attempts to influence the debate in the biodiversity conservation community against agricultural intensification using "land sparing" and toward "wildlife-friendly" farming that relies on traditional agroecological methods. The authors' central argument is that biodiversity conservation and small-scale traditional agriculture complement one another, and that "fortress conservation" (protected area) strategies are largely misguided. They argue that the quality of the "matrix" that surrounds fragments of natural habitat is critical for biodiversity conservation at the landscape scale and that traditional small-scale agriculture provides a high quality matrix that supports biodiver-