Publications

Insect Diversity Conservation by Michael J. Samways (2005), xi + 342 pp., Cambridge University Press, Cambridge, UK. ISBN 0 521 78338 0 (hbk), GBP 60.00/ USD 110.00, ISBN 0 521 78947 8 (pbk), GBP 30.00/ USD 55.00.

Perhaps the hardest part of conservation biology to teach convincingly is the Why of it. Explaining why one should act to conserve biodiversity requires the use of ethical and economic arguments that stretch the vocabulary and the self-justification of students, lecturers and practitioners of conservation science alike. I emphasize science here because of my own firm belief that conservation biology must remain objective, unbiased and couched in terms of hypothesis-testing if it is to be regarded alongside ecology, evolution, physiology, genetics and biochemistry as a fully-fledged, scientific branch of biological enquiry. How then should the author of a conservation biology textbook deal with the Why of it? Some ignore this and dive straight into How. This approach neatly sidesteps the need for ethical and moral debate, but avoids what can be a fascinating (and sometimes, for the student, revelatory) entry into the philosophy of science. Other authors explore the Why in different ways, to different depths, and with different levels of success. For example, Rosenzweig (*Win-Win Ecology*. Oxford University Press, 2003) writes optimistically about the coexistence of humans and other species. Pullin (*Conservation Biology*. Cambridge University Press, 2002) provides a brief but powerfully objective summary of ethical and utilitarian reasons for conserving biodiversity (aided greatly by colourful, student-friendly publication quality). Hambler (*Conservation*. Cambridge University Press, 2004) follows a useful section on the scientific reasons for conserving biodiversity with a strange emphasis on the Gaia hypothesis, which suggests the world is homeostatically resistant to human exploitation, then a doom-laden section that convinced me the end of the world was nigh.

For these reasons, I experience a shiver of trepidation every time I open a new synthesis on conservation. Samways' text on *Insect Diversity Conservation* was no exception. On the cover is a garish painting of the globe, half-planet and half-clock (time is ticking, etc.), clutched in the grip of a human fist (the future is in our hands, etc.), a dragonfly's abdomen bisecting two possible futures: one in which insects coexist in a lush, green ecosystem under blue skies, the other in which insect survivors set out to explore a blighted landscape. The preface hints at a rather biased standpoint: 'Blindfolded, we are turning the many faces of the Rubik Cube of biological diversity conservation in the hope that all the faces will match'. Each chapter is prefaced by crisis laden quotes from historical texts, and further imagery laden drawings of six-legged beasties dangling off the end of puppet strings, elytra in the shape of continents and human appendages morphing into weapons of extinction or hope.

If you enjoy this level of imagery and morality, the excellent science that pads out the rest of the book may put you off. If, on the other hand, you want a collection of expert syntheses of crucial topics in conservation biology (ecosystem fragmentation, invasives, climate change, prioritization, inventorying, management, restoration, politics), then you should ignore the moral biases and enjoy the science of the book. Samways is a true expert with a comprehensive, even encyclopaedic, knowledge of the entomological literature, and an impressive publication record in insect conservation. All insect conservation scientists should buy this book, mainly for the fantastic bibliography (thank you, Professor Samways, for fully referencing all the science you describe) but also for Samways' skill at presenting complex conservation dilemmas as conceptual models. Particularly excellent is his model of conservation triage, with management strategies placed on a plane described by two axes: ecological integrity and disturbance level. Taxon-unbiased conservation biologists should also buy this book, as should rationale-unbiased entomologists: the wealth of science in such a short space is impressive.

The holy grail for authors of science texts is probably to be taken up as a core text for university courses. My concern is that the title and moral imagery of Samways' text could prevent this. The conservation angle loses relevance to entomology students, while the entomology angle loses relevance to conservation students. The morality simply distracts students from the powerful scientific material and promotes the kind of poorly reasoned, emotive statement that can spoil even the best student essays in conservation biology. I hope that anyone put off by the restricted subject matter and the imagery will ignore these problems and buy the book.

I also hope that future editions will attempt to attract a wider scientific audience.

Dave Hodgson
Centre for Ecology and Conservation, University of Exeter in Cornwall
Tremough Campus, Penryn, Cornwall, TR10 9EZ, UK
E-mail d.j.hodgson@exeter.ac.uk

Phylogeny and Conservation edited by Andy Purvis, John L. Gittleman & Thomas Brooks (2005), xiii + 431 pp., Cambridge University Press, Cambridge, UK. ISBN 0-521-53200-0 (pbk), GBP 35.00.

When new scientific fields emerge a great deal of controversy often surrounds what they do and what they should consist of. One such field, conservation genetics, has arguably come of age in only the last 5 years, with the appearance of the first textbook and journal by that name. While participating in a recent Latin American conservation genetics workshop several contributors voiced strong skepticism about the relevance of phylogenetic techniques to the new discipline (notwithstanding their skilled use of such techniques in their non-conservation work). I therefore found it irresistible when, shortly afterward, the opportunity came along to review an edited volume on the subject.

Satisfyingly, the editors of this book open their introductory chapter by implicitly recognizing such skepticism, arguing the need for a critical review based on the rapid recent growth in both phylogenetics and conservation biology, and on the fortuitous pre-adaptation of phylogenetic techniques to a growing (and some might say disturbing) trend in conservation biology toward priority-setting, planning, and 'diagnosis' (as opposed to 'cure'). However, they conclude their introduction with a disarming lack of self-promotion: 'In the end how will phylogenies impact conservation? Some of the evidence presented in this book suggests that their impact may be small . . . [although] in other ways, phylogenetics may provide considerable benefits to conservation.' This dispassionate stance promises and delivers a judicious volume that combines the original work and reviews of a wide range of experts into four main sections, within and across which chapters are well edited to interconnect, with cohesively styled and clear graphics.

Section One, Units and Currencies, tackles the applications of phylogeny in conservation that are perhaps most widely accepted as useful: the diagnosis of units (species, ESUs, etc.) towards which to direct conservation attention, and the measurement of currencies (such as phylogenetic distinctiveness) by which to prioritize the units receiving that attention. In this section, chapters range in style from synthetic (Chapters 3, 4 and 6), to hypothesis driven (Chapter 5), to 'how to' (Chapter 2, which many molecular ecologists with basic rather than applied conservation questions will also find of interest). The section validates some aspects of these applications of phylogeny in conservation, thoroughly covering current controversies while suggesting creative paths forward. For example, while the editors dream of an international movement to arrive at a unified, phylogenetically based conception of species for conservation purposes, Chapter 3 dismisses visions of this sort as folly, but also makes the innovative suggestion that IUCN Red List assessments at least should include an explicit description of the species concept used in each case, with the evidence supporting the taxonomy selected.

Section Two, Inferring Evolutionary Processes, moves on to more controversial justifications for using phylogeny in conservation: as a means to diagnose extinction risk (based on species distributions that are smaller than expected from phylogenetic predictions, Chapter 7), and to understand the mechanisms that have both generated and pruned diversity in the past, in order to safeguard or avoid them in the future (Chapters 8–11). While the structure of many of these chapters, in-depth studies of circumscribed areas, with a brief Implications for Conservation section at the end, make these justifications less compelling, the richness of detail and the quality of technique in these chapters amount to a defence of basic, geographically-focused, multidisciplinary ecological research, which in the end might have made a better reason for their inclusion in this volume. Many conservation solutions, in the end, are intensely local, and the simple fact that many unpredictable local factors may combine to make conservation efforts successful is perhaps argument enough that no amount of local knowledge, including phylogenetic, can be too much (that is, when gathering information that taps into resources that are otherwise unavailable to conservation).

Section Three, Effects of Human Processes, then combines chapters that further plumb two justifications presented in earlier sections (phylogeny as a currency to set priorities and as a tool to diagnose future risk), in ways that bolster the editors' rather cool appraisal of some uses of phylogeny in conservation. Chapters 13, 14 and 16 present exhaustive evidence that phylogeny plays a significant role in determining both taxon susceptibility to threats and propensity to invasiveness. However, they also show that this role is small enough when compared with other factors as to presently limit its usefulness for future predictions. Chapter 12 finds that, at least for birds at a large scale, several components of extinction risk (endemism, threat to species, habitat vulnerability and evolutionary distinctiveness) appear to covary, creating a limited number of areas high in all of these measures, and perhaps obviating the need to focus in on phylogenetic measures for priority setting.

The final section of the book, Prognosis, is an entertaining combination of chapters considering the often glibly stated but rarely closely examined twin goals of