Management decisions

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The Balance of Nature? Ecological Issues in the Conservation of Species and Communities. By Stuart L. Pimm. *University of Chicago Press: 1992. Pp. 448. $62, £49.50 (hbk); $26.95, £21.50 (pbk).*

CONSERVATIONISTS are increasingly taking decisions about how best to protect this species or that habitat. Only recently has there been a consensus that it is usually more beneficial to conserve whole communities rather than just specific species (it is still easier to raise money for a showy, endangered bird or mammal than for its habitat). But where does the manager go for advice? And how good is the information available from ecologists?

This book is about communities and their characteristics. Stuart Pimm provides a useful overview of the current state of knowledge about communities, dealing with their stability, resilience (the rate at which they recover their former state after some disturbance), persistence (how long a population remains around one level before changing to another) and resistance to change. His general thesis is that "ecologists have given relatively little attention to long-term, large scale processes, and that, when they do, the importance of multi-species dynamics becomes increasingly important".

Pimm reviews the now copious data on communities and also the large range of theories, often backed up by computer modelling, predicting what communities may do under different circumstances. Particularly instructive are those occasions when the ecologist has experimentally (or man inadvertently) altered a community in some way. A species may be added to, or lost from, a community and the repercussions of this can be examined. To put it mildly, the results may not always be anticipated.

The trouble for conservationists and managers is that the ecologists' studies often do not yield clear, consistent results that can safely be used as a basis for management programmes for different communities. For example, it might seem obvious that the removal of a predator would lead to an increase in the numbers of a species on which that predator preyed. In practice, however, this may well not be the case; indeed, removal of the predator may even lead to a decrease. This counterintuitive outcome may arise if there are two (or more) competing prey; the removal of the predator may lead to an increase in one of the prey species which will increase the effects of its competition on the other, to the latter's detriment.

An impressive amount of thought and study has been devoted to such issues over the past 15–20 years. But from time to time one is brought up short by the gap between observations and nature. Take Pimm's analyses of the success of man-made introductions of new species. Only some 15 per cent of attempted game-bird introductions have been successful and upwards of 75 individuals need to be released to obtain that level of success. This is enough to put off almost anyone who might wish to attempt such introductions. For the most part, this is probably a good thing, but what of the conservation projects in which attempts are made to reintroduce a species into the wild? Are their chances of success as low as this? If only small numbers of a species are available, is it worth trying at all? Nevertheless, most natural introductions of plants and animals to new habitats (such as islands) presumably involve very few individuals, perhaps only a single pair. Of course, we have no idea of the success rate, but populations obviously can flourish from such modest beginnings. (The same worries apply to theories about the minimum population size needed to maintain genetic diversity.)

The Balance of Nature? will be of most use to ecologists, although I must confess that it left even me feeling a bit at sea. The subtitle suggests that the book is also intended to be read by conservation managers, but I doubt whether it will reach this audience. Too many of the topics have such conflicting data that the book inevitably becomes complex and lacking in clear proposals. This is a shame, because conservation managers have to act and ecologists can often give them useful advice. □

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Other recent ecology books

■ *Aquatic Insect Ecology. Vol. 1: Biology and Habitat* by J. V. Ward. Published by Wiley, price £70.

■ *Fundamentals of Aquatic Ecology* edited by R. S. K. Barnes and K. H. Mann. Published by Blackwell Scientific, price £18.50 (pbk). For a review of this book's predecessor, see *Nature* **289**, 709 (1981).

■ *Ecology: Principles and Applications* by J. L. Chapman and M. J. Reiss. Cambridge University Press, price £15.95 (pbk).

■ *British Plant Communities. Vol. 2: Mires and Heaths* edited by J. S. Rodwell. Cambridge University Press, price £95, $195. For a review of volume 1 on woodlands and scrub see *Nature* **353**, 224 (1991).

Methods books

■ *Recombinant DNA Laboratory Manual* by Judith W. Zyskind and Sanford I. Bernstein. Revised edition. Academic, $29.95 (spiral bound).

■ *Techniques in Protein Chemistry III* edited by Ruth Hogue Angeletti. Academic, £30 (spiral bound).

■ *Methods in Neurosciences. Vol. 8: Neurotoxins* edited by P. Michael Conn. Academic, $49.95 (spiral bound).

■ *Methods in Molecular Biology. Vol. 10: Immunochemical Protocols* edited by Margaret M. Manson. Humana, $69.50.

■ *Neuromethods. Vol. 20: Intracellular Messengers* edited by Alan A. Boulton, Glen B. Baker and Colin W. Taylor. Humana, $99.50.

■ *Quantitative Methods in Neuroanatomy* edited by Michael G. Stewart. Wiley, £60, $128.

■ *Analytical Techniques in Immunochemistry* by Terry M. Phillips. Dekker, $125.

■ *The Baculovirus Expression System: A Laboratory Guide* by L. A. King and R. D. Possee. Chapman and Hall, £30.

■ *Plant Tissue Culture Manual* edited by K. Lindsey. Kluwer, $76.50, £45.50.

■ *Molecular Genetic Analysis of Populations: A Practical Approach* edited by A. R. Hoelzel. IRL/Oxford University Press, £22.50 (pbk).

New in paperback

■ *The Eclipse of Darwinism: Anti-Darwinian Evolutionary Theories in the Decades around 1900* by Peter J. Bowler. Johns Hopkins University Press, $13.95, £10. Reviewed by David L. Hull in *Nature* **306**, 714 (1983).

■ *The Creative Mind* by Margaret Boden, now with a brief foreward. Cardinal, £6.99. Reviewed by Douglas Hofstadter in *Nature* **349**, 378 (1992).

■ *A Dictionary of Plant Pathology* by Paul Holliday. Cambridge University Press, £14.95, $24.95.

■ *Megaherbivores: The Influence of Very Large Body Size on Ecology* by R. N. Owen-Smith. Cambridge University Press, £19.95, $34.95. For a review see *Nature* **338**, 386 (1989).

■ *The Human Psyche: The Gifford Lectures 1978–9* by John C. Eccles. Routledge, £10.99. For a review see *Nature* **292**, 471 (1981).

■ *Conceptual Issues in Psychology*, 2nd edn, by Elizabeth R. Valentine. Routledge, £12.99. The first edition was reviewed by P. E. Bryant in *Nature* **302**, 180 (1983).

■ *The Social Impact of Computers* by Richard S. Rosenberg. Academic, $39.95.

■ *The Global Environmental Movement* by John McCormick, now with an updated introduction. Belhaven, £14.99. Reviewed in *Nature* **343**, 29 (1990).

■ *Supersymmetry and Supergravity*, 2nd edn, by J. Wess and J. Bagger. Princeton University Press, $22.50, £17. In a review of the first edition, Abdus Salam wrote that "serious students of particle physics would do well to acquire a copy" (*Nature* **307**, 297, 1984).