

nate, because the book seriously presents and synthesizes a vast amount of fascinating and useful data.—David Wagner, University of Oregon, Eugene

Species Conservation: A Population-Biological Approach. A. Seitz and V. Loeschcke, eds. 1991.

Birkhäuser Verlag, Boston. 281 pp. ISBN 0-8176-2493-7 (cloth, \$79.00).—This book is a collection of 17 papers, and a summary epilogue, delivered at an October 1989 symposium on population biological aspects of species conservation held in Mainz, Germany. According to the preface, the "audience consisted of scientists interested in conservation biology as well as...[those] active in conservation practice." Thus, I approached this book with the anticipation of broadening my understanding of the population biological issues relevant to conservation and preservation of both plants and animals. However, it quickly became apparent that the scope of the book was much narrower than promised; the papers deal primarily with conservation of endangered species in Germany, with some additional attention given to the rest of the European Community (EC). Only two of the chapters deal with empirical studies outside Europe: Menzies on lobsters and crocodiles in the Caribbean, and Schoenwald-Cox and Buechner on carnivores in the U.S. Two others deal with general theoretical issues in conservation biology: Templeton on the intersection of genetics with conservation biology; Akçakaya and Ginzburg on ecological risk analysis.

Ideas and techniques of conservation biology are general enough to apply to both plants and animals, although historically conservation biology has focused on threatened animal species; the Endangered Species Act of 1973 did not even mention plants! This volume reflects this historical bias, as 13 of the 17 papers deal with animal conservation. Botanists, however, can learn much from these studies, and avoid reinventing the conservation wheel. The four chapters on plant conservation do illustrate well the relevant approaches and information derived from animal studies.

The population biological approach referred to in the title is considered broadly in this volume. Fully half of the papers are concerned with population genetics, with an emphasis on loss of genetic variability in endangered/threatened populations, and ways to maintain high levels of genetic differentiation of subpopulations. This focus is apparent from the introductory chapter by Seitz, whose title, 'Population biology, the scientific interface to species conservation', belies an emphasis on the role of genetic polymorphisms in the adaptation to changing environments, as well as an exposition on DNA fingerprinting techniques. The chapter by Templeton considers the role of genetics in conservation from a theoretical perspective, with examples drawn from elephants, bovids, and lizards. Three chapters deal with the theory of 'dynamic gene conservation'; Gregorius discusses this topic in opposition to germ plasm banks (static gene conservation); Gabriel, Bürger, and Lynch discuss genetic load and demographic stochasticity in computer models; Menzies covers allozyme variation in subdivided populations of spiny lobsters and crocodiles. Two chapters deal with plant genetics. Bijlsma, Ouborg, and van Treuren consider genetic and phenotypic variation of two endangered species in the Netherlands: *Salvia pratensis* and *Scabiosa columbaria*. Henry et al. discuss a country-wide experimental effort to dynamically conserve (i.e. by continuous growth in the field as opposed

to maintenance in germ plasm banks) genetic resources of wheat cultivars in France. Their paper, along with Templeton's, are very useful in illustrating the degree of effort needed to maintain genetic diversity and to reestablish extinct demes.

Four papers are oriented in a more classical population biological direction. Rennau examines the role of spatial heterogeneity in maintaining an acarine predator-prey system. Bauer presents an exceptionally detailed study of the imminent extinction of freshwater pearl mussels in Germany; his focus (unique to this volume) is on the role played by phenotypic plasticity in maintaining viable populations. The results are counter-intuitive; fast-growing mussels reproduce less and are doomed to extinction while their slow-growing counterparts are not. Although mussels are Animalia, botanists interested in plant conservation would be well advised to examine closely the role of phenotypic plasticity in population stability. Oldham and Swan deal with amphibian conservation in the U.K. and illustrate how involving the general public in conservation programs can facilitate population protection. Ristow et al. chart the population dynamics of two bird species—Cory's Shearwater (*Calonectris diomedea diomedea*) and Eleonora's Falcon (*Falco eleonora*)—in the Eastern Mediterranean.

The remaining papers cover a melange of topics. Akçakaya and Ginzburg discuss computer models of ecological risk analysis (the RAMAS package). Vogel and Westerkamp present an unconvincing argument that pollinators integrate and maintain biocenoses (ecosystems, *sensu lato*). Starfinger describes the population dynamics of the invasive tree *Prunus serotina* in Europe. By contrasting the dynamics of this species in Berlin and its native Pennsylvania (U.S.), Starfinger assesses its potential for outcompeting native species and projects its future population structure in Berlin.

The two concluding chapters take a more synthetic tack. Mühlenberg, Hovestadt, and Röser discuss the issue of preserve size. These authors outline a detailed procedure for selecting target species for preservation, and describe needed demographic and genetic parameters necessary for a successful preservation effort. In the concluding chapter, Mader discusses the EC's NATURA 2000 nature protection strategy and gives a number of possible models for its implementation.

Overall, I left this book feeling unsatisfied. The papers focus more on preservation of single species (primarily charismatic megafauna) and less on habitat preservation. The focus on population genetics, which in itself is clearly an important aspect of conservation biology, overwhelms the consideration of species' demography and life history, as well as policy issues in the EC and around the world. The restricted geographic scope of this volume—it emphasizes (1) Germany, (2) the EC, and (3) the rest of the world—while a needed eye-opener to U.S.-centric readers, was unexpected given the volume's title and introductory chapter. The chapters themselves are poorly integrated (a general difficulty with edited symposium volumes), and do not follow a common format. There are numerous typographical errors and papers by authors whose primary language is not English are edited poorly. Given its high price relative to its size (\$0.28/page), this could be a useful volume in a standard college/university library collection on conservation biology, but is not likely to be of lasting value on a personal bookshelf.—Aaron M. Ellison, Mount Holyoke College, South Hadley, MA

U.S. National Plant Germplasm System: A Global Genetic Resource. Academy Press, Washington DC (\$19.95).—Man

critical review of (NPGS) of the U.S. Committee on Management of Agricultural Plant Genetic Resources National Research report on the management of the US is one of five in the series. Many others deal with food and crop plants. NPGS Working Group dealing with the

The aim of the report was "to assess components of the system for adequacy in application and meeting the needs of agriculture, and to examine the interaction in the plant genetic resource sections that deal with elements of the management of changing the system.

The first section important components it then goes on to discuss germplasm effort system (NPGS). plant germplasm year). On the accession Collection, 110,000 distributed genetic Chapter 1 points to cooperative activities government. Working activities are supported Research Service (CSRS). also involved. The individuals, state ties. However, these germplasm of the organization different priorities are allocated from various agencies funds. In short, plant genetic resource which would divert financial resources coordinated and administration, it resources program

Chapters 2 and of NPGS as it exists administrative as system has lacked chapters that it is extent of its collections accessions nation