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little more independence from the text would have been welcome in the picture captions. But the scope is enormous and the shape is satisfying.

This is not just scholarly and accomplished writing, it is history and natural history in one—would they had always been so. It should be obligatory reading for every school in the land. Better, for every school in every land around the Mediterranean. I do not just recommend this book, I urge it upon you.

Lord Birkett, Chairman of FFPS's Arts Support Group.

Primate Conservation in the Tropical Rain Forest Monographs in Primatology, Volume 9

Edited by C. W. Marsh and R. A. Mittermeier
Alan R. Liss, New York, 365 pp, HB £61.00

At last we have a comprehensive volume on the world's most complex and endangered ecosystem—tropical rain forest. Although focused on its largest residents—primates—the broad, detailed approach enhances its value to all conservationists and tropical biologists. After eight years' gestation, 26 contributors have produced 14 chapters arranged in three sections; there is a mixture of old and new topics, but all are refreshingly clear, factual and concise—a credit to contributors and editors alike. The stated aim is to blend conservation theory with practical solutions, in view of the needs to compare problems faced by primates across the world and to examine directions for progress in practical conservation efforts. Hence the themes of relating the decline of tropical forests to primates as 'flagships' for their conservation, and recognition of the variation in threats and the need for research directly relevant to their elucidation.

In introducing the section on Problems, Myers emphasizes the nature of the developing tragedy and identifies the economically orientated solutions in his usual powerful and factual way. Then, Brockelman and Ali compare the aims and methods of surveys, censuses and intensive studies, with a full discussion of the problems involved and clear recommendations for the best approaches in each case. Happel, Noss and Marsh then examine variables of predictive value for species' rarity and endangerment, concluding, surprisingly, that reproductive variables, inde-

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pendent of body size, influence vulnerability to extinction. Marsh, Johns and Ayres detail the effects of different kinds of disturbance—from removal of plant products to large-scale clearance—on primate populations, a topic of increasing academic and practical importance. The role of hunting in depleting primate populations is examined by Mittermeier, with exploitation for food being most important in Latin America and Africa (west and central), and control of pests being a major factor in Africa and Asia. Kavanagh, Eudey and Mack review the trade in primates, much reduced over the last decade, for biomedical research and pets, identifying the countries involved and the few species threatened.

The section on Approaches starts with a thorough review of the concepts and practicalities of protected areas, in relation to island biogeography and population genetics, with reference to the 42 million hectares in 296 protected areas in 120 countries. Weber then describes the values of and threats to the Afro-montane forests of the Zaire–Nile Divide on terms of socio-ecology and economics. Aveling compares environmental with conservation education, spells out the approaches, and reviews worldwide the contributions of formal and informal education, foundations and education centres. The section is concluded by the one contribution on captive propagation, by Foose, Seal and Flesness, who detail the procedures (and theory) involved and discuss the selection of taxa and the capacity of zoos for this work—only about half of the endangered primate species are currently represented. While very appreciative of the role of captive propagation in conservation, I am bothered by the authors' claims that habitat protection is becoming increasingly difficult and unfeasible, and that the readaptation of reintroduced lion-tamarins to South-East Brazil is satisfactory.

The volume is concluded by a section on Priorities, with stimulating summaries of the Action Plans for each continent, compiled by the Primate Specialist Group of SSC/IUCN over the last few years—Mittermeier on Latin America; Oates, Gartlan and Struhsaker on Africa; Richard and Sussman on Madagascar; and Marsh on Asia. All identify the most threatened species and

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communities, and emphasize the critical needs for surveys, training and education under the umbrella of conservation/development strategies.

Thus, we have an impressive, well-illustrated volume with a wealth of facts, ideas and feasible recommendations, which offer real hope for the effective conservation of tropical rain forests—a real must for anyone in any way involved or interested.

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The Ecology of Sulawesi

A. J. Whitten, Muslimin Mustafa and G. S. Henderson

Gajah Mada University Press, Yogyakarta, 1987, 777 pp
Copies are currently available from Heffer's Bookshop, Cambridge, at a cost of approximately £18.00.

The island of Sulawesi, approaching the United Kingdom in size, lies in the deep waters between the Sunda and Sahul shelves. As such, it has been isolated for a long period of geological time and its fauna and flora are less diverse than those of the continental islands from which they are derived. Endemism in the flora is relatively low, but the fauna, derived from both the Asian and Australian continents, is highly endemic. This is particularly true for the vertebrates where 68 per cent of mammals and 32 per cent of the resident birds are unique to Sulawesi.

The island has a population of 11 million, but the people are relatively unevenly distributed and until 1980 about 55 per cent of the island was still forested. However, the expansion of logging, the destructive impacts of shifting cultivation and the establishment of new settlements by colonists from Java, Madura and Bali are all contributing to the increased pressures to which the natural ecosystems of the island are subject. In theory Sulawesi has a comprehensive system of protected areas, but in practice few of them receive adequate management and many are under threat. Outside of the protected areas much of the remaining forest land will be converted to agriculture or logged within the next decade or so.

Decisions taken in the next few years will determine whether or not a reasonable sample of the

ecosystems of the island is conserved, and will also dictate the extent to which the use of the rest of the land is sustainable. If the correct decisions are to be taken, it is important that the people taking them have a sound understanding not only of the ecology of the island, but also of the basic ecological constraints that operate in tropical ecosystems. This book provides both. The authors have undertaken the ambitious task of presenting a comprehensive account of the natural history of the island in the context of good basic presentation of the latest thinking in conservation biology. Although a wealth of information is presented in the book's 800 pages, the text is easy to read and is greatly enhanced by numerous illustrations. There is an excellent bibliography and index.

Inevitably, it has been difficult to achieve balance in such a comprehensive book. The choice of issues in the concluding chapter on 'Resources and the future' is somewhat arbitrary. The three pages devoted to the future of forestry deal at some length with the International Tropical Timber Agreement, probably of little immediate relevance to Sulawesi, but give scant attention to the more urgent issues of the delimitation of the island's forest estate, the allocation and management of concessions and the vexed question of stumpage fees.

This book could provide a valuable basis for the elaboration of sound development strategies for Sulawesi. It does, however, tend to ignore the fact that if all the existing laws, policies and plans relating to the management of Indonesia's forests were properly applied to Sulawesi, the prospects for the island's future would be good. The problem is that there is a basic conflict between what is good for the individual in the short term and what is good for the population at large in the longer term. The structures do not yet exist in Sulawesi to ensure that the latter prevails. Ninety-five per cent of the income generated in central Sulawesi comes from forestry, but this is almost exclusively obtained at the cost of a deterioration of the resource base. The potentially important long-term benefits of forested watersheds and biologically diverse natural ecosystems are grossly undervalued by everybody from the shifting cultivator on one hand to the international development assistance planners on the other.

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