

Terrestrial Ecoregions of the Indo-Pacific – A Conservation Assessment by Eric Wikramanayake, Eric Dinerstein, Colby J. Loucks, David M. Olson, John Morrison, John Lamoreux, Meghan McKnight & Prashant Hedao (2002), xxix + 643 pp., Island Press, Washington, Covelo & London. ISBN 1 55963 923 7 (pbk), \$85.00.

This volume is part of an ongoing effort by the World Wildlife Fund (USA) to assess and prioritize the ecoregions of the world for conservation. Previous volumes dealt with terrestrial ecoregions of Latin America and the Caribbean, of North America, and freshwater ecoregions of North America. A volume on Africa is forthcoming.

The Indo-Pacific, as defined here, extends from Pakistan to Melanesia (as far as Vanuatu and New Caledonia) but excludes Polynesia and Micronesia, regions traditionally included in the Indo-Pacific. The northern boundary is the Chinese border along the Himalayas and Indochina; the southern boundary is the Torres Strait, thus excluding Australia. The hierarchical approach adopted first divides the region into five “bioregions”, essentially defined biogeographically. These bioregions are then divided into 140 “ecoregions”, defined primarily by vegetation type (taking into account climate, elevation and biogeography) and allocated to “biomes” cutting across the bioregions. For example, within the Indochina bioregion, the Cardamom Mountains Rain Forests ecoregion is allocated to the Tropical and Subtropical Moist Broadleaf Forests biome. The goal is to develop a portfolio of priority ecoregions representing all biomes in each bioregion.

As the authors stress, all ecoregions of this spectacular and diverse region deserve to be conserved. But this is impossible, and so triage – the selection of those ecoregions to be focused on first – is inevitable. Prioritization is based on two indices: “biological distinctiveness”, derived primarily from species richness and endemism, and “conservation status”, evaluated primarily on the amount of habitat lost or fragmented and the proportion currently protected. Each ecoregion is placed in a matrix, depending on its scores for these two indices. Projected threats, primarily logging, but also removal of wildlife for human consumption and trade (leading to the ‘silent forest’ syndrome) are then superimposed, giving a “final conservation status”.

Prioritization then takes a two-pronged approach, selecting from the matrix 1) highly threatened ecoregions with globally outstanding biodiversity, and 2) ecoregions with globally or regionally outstanding biodiversity that contain large areas of intact habitat (thus offering opportunities for developing effective proactive conservation rather than fighting a rearguard action in an already seriously damaged ecoregion). By ensuring that every biome present in each bioregion is represented in this priority ecoregion portfolio, the broadest array of biodiversity distinctiveness as well as conservation opportunity is included.

So which ecoregions are the top priorities? Of the total of 140, 60 are identified as containing the most important biodiversity and being either seriously threatened or sufficiently intact to offer good opportunities for effective conservation. They are allocated to three urgency levels: 32 “most urgent”, 20 “high priority”, and eight (plus an additional five to fully represent all biomes at the bioregional level) “priority”. Thus the book’s essential purpose is achieved: to provide a guiding framework for conservation organizations, governments, international agencies and other donors to focus their efforts most effectively at regional, national or local levels depending on their purview.

Finally, suggestions are made about how to actually effect conservation in the region. This is the least compelling part of the book, but only because it is such a difficult issue. “Conservation performance payments” – payments to local people for direct conservation actions – are considered vital; they should be linked to establishment of strictly protected areas, which are also vital. “Integrated conservation and development projects” – projects that provide alternatives to biodiversity consumption or destruction and hence indirect conservation – must be integrated into landscape-scale conservation and not considered as local, one-off efforts. Bold, charismatic and enlightened leaders are crucial.

This entire exercise, from assembling the ecoregions to prioritizing them, and to offering approaches to regional conservation, takes up just half the book. The remaining half provides details of each ecoregion, 2–3 pages for each, including a general description, justification for its designation as a distinct ecoregion, salient features of its biodiversity (including lists of

endemic mammals and birds), its current conservation status, threats, priority conservation actions, species such actions should focus upon, and a list of organizations involved in the ecoregion. This is an enormous mine of information for every agency or individual involved in conservation in the Indo-Pacific.

From a purely academic viewpoint, while this information resource is hugely valuable, the chapter "How is biodiversity distributed?" is the most interesting, being a thorough treatment of patterns of diversity and endemism that includes analyses of continental versus island patterns, correlations between mammal and bird endemism, and species-area relationships. The 22 essays interspersed throughout the book offer detailed and interesting analyses of specific issues (e.g. tiger conservation in the Terai Arc along the borders of India and Nepal).

It is hard to find fault with this information-packed volume. The entire exercise is, however, based only on diversity and endemism of mammals and birds and, to a less rigorous extent plants. But while explicitly acknowledging that exploration and species inventories are necessary to fill the gaping holes in our knowledge of the region's biota, the threats (primarily logging – an issue that crops up throughout the book) are so serious that there is no time for this. Therefore, although a proxy analysis, it is the best that is currently possible, and the book is the essential manual and guide for conservation in the Indo-Pacific.

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Agroecological Innovations: Increasing Food Production with Participatory Development edited by Norman Uphoff (2002), xviii + 306 pp., Earthscan, London, UK. ISBN 1 85383857 8 (pbk), £18.95.

There is an impending crisis in agricultural development in poor countries, as the Green Revolution appears to be losing its momentum, certain international agencies claim an impending food scarcity, and the advocates of biotechnology, fertilizers, soil and water conservation, and organic 'low external input' farming lock their horns in debate. This book asks how far 'agroecological approaches' can help meet the expected demand for food in the foreseeable future. It argues that there are alternatives to environmentally destructive, agro-chemically dependent industrial agriculture.

Agroecological approaches, according to the Editor, go beyond technologies to the production system as a whole, stressing a diversity of solutions, making a commitment to the participation of farmers and the full use of their knowledge, recognizing the limitations under which they work, and a need to minimize dependence on external inputs, to achieve stability of output and economic and environmental sustainability. The first part of the book, therefore, explores agroecological principles, the importance of social and human capital, the economics of intensification, and the challenge of a growing world population.

Having thus offered a few appetizers, the book then proceeds to main courses on Africa, Latin America and Asia – with from three to six case studies on each, covering such topics as agroforestry, aquaculture, organic farming, paddy rice intensification, livestock, no-till technology, pest control and hillside farming. These cases are selective, diverse, and multi-disciplinary. Most of them stress technological rather than institutional or policy factors. While three contain brief cost-benefit analyses, only one looks at the broader context of market growth. It is not always clear why this selection, rather than any other, should be exemplary of a new approach.

As an accessible collection of ideas on agroecological development, and with its suite of case studies, the book offers an introduction to the subject and could be read in conjunction with Harold Brookfield's systematic text *Exploring Agrodiversity* (Columbia University Press, 2001). More than 20 authors make for considerable diversity of viewpoint and the reader may sometimes have difficulty in identifying the common ground. Thus a need for unifying theoretical development appears to be recognized. The last part of the book offers, however, a rather fragmentary vision: of diversity, process and practice, of learning environments and role relationships, of institutions and policies. Notwithstanding the Editor's argument, in the final chapter, that the agroecological vision will "continue to unfold as experience grows and its scientific foundations become better established" (p. 262), no road map is offered for a meaningful engagement with the homogenizing pressures of multi-national biotechnology, the corporate appropriation of intellectual property, or the distortions of unequal world trade. Nor are biodiversity conservation issues specifically addressed – a pity, because the recognition of value in agrodiversity offers a fresh, though challenging, opportunity to seek innovative harmonies between feeding people and enjoying nature.

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Swiftlets of Borneo: Builders of Edible Nests by Lim Chan Koon and Earl of Cranbrook (2002), ix + 171 pp., Natural History Publications (Borneo) Sdn. Bhd., Sabah, Malaysia. ISBN 983 812 060 X (hbk), price unmarked.

Imagine a potion capable of replenishing vital energy, increasing metabolism, relieving pulmonary problems and aiding digestion, not to mention increasing sexual libido. Those are the professed merits of, well, bird saliva. Edible-nest swiftlets build their nests of a mix of saliva and feathers – the ratio of saliva to other particles depends on the species and has direct bearing on the value of the resulting nest. Edible nests have been traded between South-east Asia and mainland China since the Ming Dynasty (A.D. 1368–1644) and possibly as early as the T'ang Dynasty (A.D. 618–907). The trade continues today and, as the authors of *Swiftlets of Borneo: Builders of Edible Nests* state, the price of edible nests is a more useful barometer of economic wealth in East Asia than any stock exchange. Like many natural resource commodities, however, edible nests are not being harvested sustainably, and supplies in the wild are declining dramatically. The dark caves where these birds nest are now protected by guards, often wielding semi-automatic weapons. At approximately \$1,300–1,800 per kg for the prized white-nest swiftlet, the harvest is indeed valuable.

Authors Lim Chan Koon and Earl of Cranbrook together have decades of experience studying edible-nest swiftlets, primarily in Malaysian Borneo. As a result, the focus of their book is on Sarawak but they also provide much useful information on Kalimantan, Indonesian Borneo. The 171 page book is written in a highly popular style and is peppered with more than 129 full color plates, maps and photos. There are 23 text boxes that I found to be the most informative parts of the book. The material in these boxes is written in a crisper and more detailed style, and references are provided at the end for further reading. The introductory chapters cover only basic taxonomy, distribution and ecology. However, the authors provide interesting accounts of the echolocation capabilities of edible-nest swiftlets, their unique salivary glands, and the chemical composition of their saliva (but a thorough grounding in organic chemistry is needed to fully appreciate this text – you remember mannose and N-acetylneuraminic acid?). The chapter concerning breeding biology pro-

vides interesting information on nest site and mate fidelity. I was morbidly fascinated to learn that some mates are mistakenly and eternally glued to their own nest by an over zealous mate adding salivary 'glue'. More important, however, this chapter provides the necessary background information for understanding how these species may be sustainably harvested.

The last three chapters of the book deal with human exploitation, cave management systems, and conservation. These are by far the most serious chapters of the book. The authors provide historical information on trade and nest prices (in a confusing mix of US dollars, Spanish dollars, Straits dollars, Malaysian Ringgit, Dutch guilders and even Hong Kong dollars). They also give specific examples of three types of cave management found in Malaysia and Indonesia: communal, family owned, and caves tendered to private contractors. Communal management systems appear to function best, but only if communities maintained stringent traditional codes. As always, the problem with sustainable harvest is the need for self-restraint, a quality rarely present in today's Indonesian Borneo. For all management categories, harvesting cycles were often allowed to become too short, and most experienced varying degrees of infighting, corruption, and inability to protect resources against theft. Caves tendered to private contractors resulted in village industries being lost to monopolies owned by outsiders. In the final chapter on conservation, the authors discuss the potential for artificial houses to boost edible nest supply as one conservation option. They show little enthusiasm for this alternative because it does not eliminate the wild harvest. One breeder introduced an exotic sub-species from Java onto the island of Borneo, proving that ideas are often better than their execution when adequate management regimes are not in place or enforceable.

Swiftlets of Borneo: Builders of Edible Nests will be a nice addition to any birder's bookshelf. The book should give pause to any reader who considers that we may drive these species extinct and alter the ecology of South-east Asian caves for the sake of a little spit with no proven medicinal value.

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