

ing to the higher state of knowledge represented by the book's conclusions.

The book is a pleasure to read, filled with stimulating insights and impressive scholarship. It offers an explanation for the weaknesses and confusions of the culture concept in social inquiry, but it cannot propose a replacement and reestablish the certainty it disturbs. Presumably this is the postmodern condition.

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A Naturalist in New Guinea, by Bruce M. Beehler. Corrie Herring Hooks Series no. 17. Austin: University of Texas Press, 1991. ISBN 0-292-75541-4, 251 pp, illustrations, maps, bibliography, index. US\$26.95.

Bruce M. Beehler, an ornithologist and behavioral ecologist on the scientific staff of the United States National Museum (Smithsonian Institution) in Washington, DC, has written an account of tropical exploration that follows in the tradition of works by Alfred Russell Wallace, William Beebe, and George Schaller. With its lively, personalized narrative, color photographs, and evocative line drawings, *A Naturalist in New Guinea* conveys a sense of wonder that will appeal to a wide readership of amateur naturalists and explorers. Beehler's descriptions of linkages between the mating systems and feeding ecology of New Guinea birds, especially the diverse and exotically ornamented birds of paradise, provide an introduction to his more technical writings on these subjects and

will interest professional ecologists and evolutionary biologists. Moreover, his observations of the state of nature in New Guinea, now besieged by accelerating environmental change, may alert the tropical conservation movement to focus more attention on a paradise that is not yet lost.

Since 1975, Beehler has visited New Guinea eight times on extended scientific explorations in both political jurisdictions of this immense island: Papua New Guinea, the eastern half, with its former colonial and continuing ties to Australia; and Irian Jaya, the western half, once a Dutch territory and now part of Indonesia. His longest stay was twenty-nine months, spent in research on birds of paradise. In describing treks (mainly on foot) to various study sites, he details the difficulties in getting from place to place in some of the steepest and wettest country on earth, through all elevational zones in New Guinea proper, and also to rugged Goodenough Island off the southeastern coast in search of an avian mystery—a long-tailed black bird that, according to the local people, dances in the treetops of the mountain forest. He believes this may be a bird of paradise as yet unknown to science. Beehler has not yet found the bird, but considers himself well-rewarded nonetheless. In his view, just being there “is worth all the effort . . . the morning sun burning in rays through the mist of the moss-laden forest; the deep maroon sunsets over the mountains.” As a scientist, Beehler provides a perspective on the drama of discovering a new species: “Scientific advances do not usually come in a flash or as easily as taking a new species of bird from a net.

Instead, meaningful discovery is typically a slow process: one of attempt, trial and error, new insight, and repeated attempt."

Encounters with many creatures other than birds enliven these pages. On his rambles Beehler finds fruit bats, tree kangaroos, and, in the company of a herpetologist colleague, tiny frogs that roost and breed, condominium-style, in bulbous chambers formed along the stems of certain plants in the mountain forests. At low elevations these chambers typically house ant nests in a symbiotic relationship—the plant provides the ants with shelter, and the ants control aphids and other pests—but higher in the mountains, the ants disappear, and the mini-frogs take over their apartments. Birds are always foremost in Beehler's mind, and he pursues them with impressive energy and concentration, learning the varied songs and calls so that he can track his quarry and delimit their territories in the absence of actual sightings. This is a naturalist who pushes snakes out of trees when they bar his way to a good viewpoint. He learns to ignore the sometimes abundant mosquitoes and blackflies, and even the terrestrial leeches that detracted somewhat from his wife's enjoyment of her first trip to New Guinea—a 1982 excursion in lowland rainforest that also served as the couple's honeymoon.

Wonderfully rich communities of forest plants arch over the panoply of birds and animals, ranging from understory ferns and mosses to giant canopy trees. Among the products of plant evolution in New Guinea is an incredible profusion of rhododendrons, various species of which are adapted to

conditions ranging from the hot humid lowlands to the alpine zone where freezing occurs nightly. The generation of such diversity, Beehler infers (citing the work of colleagues), has often been spurred by coevolution between plants and the animals that have become pollinators and dispersers of seeds.

Insects, birds, and bats have developed specialized feeding relationships with certain plants or groups of plants, and in myriads of cases of codependence both animals and plants have become modified (naturally selected) to better serve each other's vital needs.

By inference, our knowledge of New Guinea's biodiversity and the potential riches of its genetic storehouse in terms of practical products such as pharmaceuticals appears to lag behind our growing understanding elsewhere in the tropics. The first detailed ecological field project in New Guinea was not conducted until 1973–1975; earlier expeditions focused primarily on collecting museum specimens. Beehler wistfully and frustratedly notes that the high canopy layer of the forest is all but unknown in New Guinea. Apparently, the highly effective scaffold-and-rope-climbing technology (developed over the last decade, primarily in the New World tropics), with which naturalists scamper like outlandish spiders across webs of ropes slung 150–200 feet up in the treetops, has not reached Beehler's favorite rainforests. He never mentions these new techniques; rather, he indicates, a high-powered rifle is often the sampling device of first and last resort to knock down both plant and animal specimens. There is little doubt that when effective canopy methods are employed, New Guinea's treetops will

prove incredibly rich in life forms, probably approaching the norms for tropical America where up to hundreds of species of small animals and plants, many of them new to science, have been found inhabiting a single large tree.

The question remains whether this great tropical resource in New Guinea, as elsewhere, will survive the next few decades. About 75 percent of the island's forests are still intact, and the pace of deforestation does not yet match that of such hot spots as Brazil and Borneo. The extremely rugged nature of New Guinea's terrain still protects. However, Beehler's observations over fifteen years indicate rapid development in such forest-ruining activities as gold mining, timber harvesting, cattle ranching, and slash-and-burn agriculture by rural populations.

In 1980, Beehler visited the highlands of Irian Jaya; he flew up to the great inland valley of the Balim River, setting of Robert Gardner's celebrated *Dead Birds*, filmed during the 1961 Harvard-Peabody Expedition that made the first outside contact with some of the valley's people. Peter Matthiessen's account of the 1961 expedition (*Under the Mountain Wall*, Viking, 1962) indicated more than forty thousand people inhabiting the valley, which is about ten miles across. Here, in 1980, Beehler estimated a population of "hundreds of thousands" and found a central town (Wamena), airstrip, hotel, and other amenities. He observed timber cutting and a sawmill on the surrounding slopes. The highland people of New Guinea, some of the last in the world to encounter civilization, have been extraordinarily quick to

embrace it, as was noted by anthropologist Leopold Pospisil. He also made some first contacts in the 1950s, and was then astonished as, in little more than a decade, tribal entrepreneurs began to do business with regional commercial centers by chartered aircraft.

Is there hope for protecting New Guinea's wonderful and potentially valuable biodiversity—hope that might arise out of the quick aptitudes of its native people, some of whom have leaped out of the stone age only in the last half of the twentieth century? Bruce Beehler closes his book on such a note. Local education and training of "indigenous naturalists," he argues, is the key to effective conservation. "It is now time to share the excitement and responsibilities of studying tropical forests with those who will ultimately have to decide their fate" (243).

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The Fragile South Pacific: An Ecological Odyssey, by Andrew Mitchell. Corrie Herring Hooks Series no. 16. Austin: University of Texas Press, 1990. ISBN 0-292-72466-7, 256 pp, color illustrations, bibliography, index. US\$24.95.

Travel literature describing experiences in the South Pacific began to appear soon after early British, French, American, Russian, and other foreign explorers first encountered the remote volcanic and coralline landfalls of the world's largest ocean and their unique cultures. Nonfiction books, including