

Monteverde: Ecology and Conservation of a Tropical Cloud Forest

Edited by N. M. Nadkarni and N. T. Wheelwright. 2000. Oxford University Press, Don Mills, Ontario, Canada. 573 pp., illus. CAN \$43.95. ISBN 0-19-513310-2.

This is a gigantic and very important book. Much of our knowledge on tropical ecology comes from only a handful of research sites. Monteverde in Costa Rica is among them. Monteverde has the most spectacular cloud forest anywhere in the tropics; six principal life zones of Monteverde are known: Pacific Slope (premontane moist and wet), Continental Divide (lower montane wet and moist) and Caribbean Slope (premontane rain, tropical wet). As this milestone publication shows, it was the Golden Toad, a spectacular endemic frog species, which made Monteverde really known to the scientific world; it became the symbol of the global amphibian decline. Since 1975, 167 species new to science have been found in Monteverde. For the first time in any neotropical plant species, flower visitation by rodents was documented in Monteverde. Besides many other things, the first Costa Rican nest of a Sunbittern was also described at Monteverde.

Overall, Monteverde represents the best known high-elevation site in Central America. For a long time Monteverde has been known to produce superb research; e.g., 16 PhDs on birds alone. This situation is well reflected in the 124 book contributors from seven countries. More than 140 biologists, artists, photographers and Monteverde residents made this landmark publication possible.

This brilliant book consists of 12 main chapters and of an incredible number of short and fascinating chapters from students and others on selected topics. A great resource is the ten appendixes and the references. Appendix 1 shows a plant inventory list for Monteverde. Appendixes 2-10 deal with Orchids, Bromelids, Amphibians and Reptiles, Birds, Mammals and others. The naturalist will appreciate that Spanish and English names are given for vascular plants and for mammals (not for birds).

This great Monteverde book is basically impossible to review: there is so much detail; naturalists, researchers and conservationists will be delighted. Monteverde is known to harbour over 500 orchid species. The chapters dealing with bryophytes, fungi and epiphytes are superb; e.g., reporting on such fascinating topics as epiphytic histosol soils on tree branches, crown humus and pollination. Very detailed climate and hydrology information is provided for Monteverde, too. The entire known Monteverde fauna gets described, including bats, singing-mice and "vicious" beasts such as the ant-decapitating fly (*apocephalus*). As the book explains nicely, birds are the "poster children" of conservation efforts. Thus, a superb detailed bird chapter covers many relevant research fields in current ornithology (the expertise of co-editor N. Wheelwright). As a

reflection of the expertise of the other editor (N. Nadkarni) a major and significant contribution of this book deals with vegetation, fern, trees and canopies. Also, nitrogen input is mentioned, a topic which is often even lacking in advanced studies of northern hemispheres. In addition, volcanic and tectonic events as well as palaeoecology are covered. Such a descriptive detail does true justice to the tropical ecosystem and its biodiversity.

Particularly the Conservation Chapter is great lecture material and a superb overview about the field, and about (philosophical) reasons for conservation.

This book has also a nice and detailed documentation about local livestock and crops, which are so often ignored in many other tropical studies and publications. Even pre-historic cultures and settlements are well described as is the historical use of large mammals by locals such as the dairy history and the agroecology of coffee. Very informative are the chapters on pro's and con's of Ecotourism. Until 1977 tourists were relatively uncommon, now 50 000 eco-tourists visit Monteverde annually.

Certainly, many fascinating research questions are addressed in this book, such as sex ratios of trees, radio-tracking studies of birds and the "pointer hypothesis" for hummingbirds. An interesting link is presented for Quetzals, tree bark, and a medication against AIDS. Besides many others, research questions deal with the many bizarre behaviors exhibited by birds; e.g., communal social behaviors of Brown Jays, the chorus of Three-wattled Bellbirds and dual-male duets of Long-tailed Manakins. The obvious strengths of the Monteverde bird research are autecological studies and investigations of bird-plant interactions. Current research short-comings and future research topics are addressed, too. For instance, the lack of soil studies is emphasized for Monteverde. Cloud forests have not been well collected and high quality reptile population surveys are needed.

In the light of the delicate land owner balances, approaches to "Conservation Easements" in Monteverde are also presented in this book. The Monteverde Cloud Forest was among Costa Rica's first "Debt-For-Nature Swap". It was relatively easy to preserve Monteverde because, at the time action was initiated, it was nearly inaccessible. In 1951, a band of fewer than 50 North American Quakers bought land and settled in Monteverde. Their pioneering conservation efforts are well described here. Major themes at Monteverde include deforestation due to cattle grazing and agriculture, wood harvesting and exploitation of non-wood forest products and the effect of the Arenal Hydroelectric Project. The region has received international conservation support from agencies such as CIDA and WWF-Canada. Charismatic wildlife symbols such as the Quetzal were used to protect the forest and its fauna. In Monteverde the Scarlet Macaw is already locally

extinct, and the White-lipped Pecary has not been seen in the recent decades; it was last known to be present in the 1930s and 1940s. The Giant Anteater was also extirpated within decades after settlement, and Tapirs are now considered endangered. As a result of deforestation, range extensions of birds occur, such as the increasing number of Brown-Jays. Also, the book reports on "escaped" plant species from Africa, and on recent immigrants to Monteverde such as Africanized Honey Bees.

As the book discusses in great detail, population fluctuations in the area may be the norm rather than the exception. The affect of El Nino might be reflected by Monteverde's fauna, for example in the crash of Harlequin Frog populations. The "standard of proof" is an issue of debate in population studies. Are there sufficient long-term data for Monteverde to judge how unusual the amphibian declines really are in the context of natural demographic variability? The drastic crashes of Golden Toad, Harlequin Frog and Fleischmann's Glass Frog in 1987 are definitely part of a global pattern. Underlying reasons are discussed in this book.

On top of the existing population crashes, additional features make conservation topics even worse such as uncontrolled market-hunting: a singing male of a Black-faced Solitaire is worth 100 US\$ in San Jose, and it is known that Orchid collection presents an international threat.

One cannot escape the inherent ideology of this book and of Monteverde; e.g., the "no take" attitude and strong conservation beliefs. Monteverde is part of the "Children's International Rainforest" campaign

and strongly underlies the influence of many international conservation organisations. In this context, it is fascinating to learn from this book about the various competing NGOs (non-governmental organizations) and even about the lack of a centralized library, a digital reference pool and other relevant databases for Monteverde.

The editors claim that long-term studies and monitoring are carried out at Monteverde. However, I find when it comes to consistent and high quality long-term data, and to quantitative abundances, this book is less strong. The book does not mention centralized databases available for free over the WWW, such as implemented so successfully in CONABIO, Mexico. As a minor drawback, most of the presented maps are really hard to read, which might be a direct reflection of the lack of spatial ecology approaches in this book. All figures and photos are in black-and-white (which I find suits the style of the book perfectly).

In summary, despite deficiencies, this is an outstanding and highly recommended book; a great and long-term achievement of the many people involved with Monteverde. Indeed it belongs on the book shelf side-by-side with major publications about tropical ecology such as *La Selva*/Costa Rica, *Barro Colorado Island*/Panama and *Coch Cashu*/Peru.

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Plundering Paradise

By Michael D'Orso. 2002. Harper Collins Press, U.S. \$24.95. xix + 345 pp., illus.

This is a book about the Galapagos; not the usual wildlife account, but the human side of island life. My initial reaction to the opening pages of this book was negative. The author's attitude seemed to be cynical and he appeared to have missed the key concept of the Galapagos Islands. Rapidly though, I realized that this man was one of the best writers I had come across in a fair while, even if he is unnecessarily a little crude on occasion. I sensed he despised the Pollyanna attitude of ecotourists while describing the contribution they made. However, I really questioned if he could see the marvel that is Isla Galapagos.

Unlike most authors (who write about the amazing Galapagos wildlife) this one writes of the lives of the people who live and work on the Galapagos Islands. He includes unfaithful spouses, corrupt officials, the power and money hungry, the uncaring, as well as people trying to do the best to preserve the natural heritage.

While he focuses on the islanders, it is impossible for him to neglect the political and administrative influence of mainland Ecuadorians. The key concern is that the mainlanders will favour exploitation of nature over protection. Not surprisingly, there is more focus on the evils that beset the Galapagos than on the positive progress. But that is human nature and we all love a scandal.

I did wonder why he travelled to these remote islands to get material for a book. Each country has bad politicians, corrupt officials, vested interests, questionable use of tax money, and cheating spouses. In particular, in D'Orso's country (the United States) there is a real concern that under the current administration, environmental issues are being overridden by industrial interests. However the author reveals that the problems are far more acute in Ecuador than in North America. I have seen recent estimates that at least \$2 billion is plundered from Government funds each year by Ecuadorian political leaders. One recent President, Abdala Bucaram, is said to have spent his time in karaoke bars