

Foreword

Who, How, Where, When, and Why

This book continues an initiative that a small company of biologists, educators, and resource managers (Howard Cole, Michael Quinn, David Aldan, Larry Lee, and this work's editor/lead author), began way back in 1989. In that year, we joined together as a small ecology education writing and graphics team, working then in collaboration with the CNMI's Coastal Resources Management Program. We even formed a company, calling ourselves 'EcoEdCo'. We dedicated ourselves to developing text materials which would bring to discussion our islands' most relevant environmental issues, detailing the ecology of our unique island life forms, and highlighting the principles and methods our Commonwealth and Federal agencies apply when managing our islands' environmental resources.

We sought to provide our students with a good and thorough foundation in what has now become widely known as 'environmental education' and its ecology-fostering catch phrase of 'think globally, act locally.' We wanted to emphasize how our students and our islands' general public could become more involved with the decisions affecting our commonly-owned natural resources. We hoped we could promote a better, more professionally-focused management regime, responsibly protecting our most sensitive island and nearshore ecological habitats, particularly our native forests and our coral reefs.

In 1989, we felt that if our islands' ecology was not better understood and appreciated, our own, then very young children would soon face the same (or possibly worse) concerns, that we were then witnessing. For those who were not here at the time, during that year, **one and one half million gallons of raw sewage** flowed **untreated** into our Saipan Lagoon, **per day!!!** Rumors of imminent lagoon-wide beach closures were widespread. A brief environmental management attempt, aimed at imposing a building moratorium, was politically squelched within a month. An attempt to actually close a beach was likewise politically killed. Eventually however, a private lawsuit was successfully adjudicated against a major local hotel for its failure to adequately warn its guests against the known lagoon water's pollution and a US Environmental Protection Agency (USEPA) order was finally levied, mandating us to resolve the situation, "or else." The federal penalty for noncompliance could have been \$25,000 per day. Until the matter was resolved, such a fine would have imposed on each of us, distributed through our taxes, an additional \$2,100.00 per person per year, just for polluting our own lagoon.

Only through a remarkable cooperative effort led by the Commonwealth Utilities Corporation, the Division of Environmen-

tal Quality, the CNMI's Governor's Office via the Coastal Resources Management Office, and the US Environmental Protection Agency, was Saipan's lagoon saved from potentially irreparable harm. Sewage treatment plants were upgraded, leaking sewer lines were replaced, and necessary lift stations were installed. CUC promulgated regulations mandating hookups to all nearby sewer lines. CUC also established its own laboratory for monitoring the quality of both its supplied household portable water and its discharged sewage effluent. The USEPA certified this laboratory, along with a co-established regulatory water quality laboratory located at DEQ. Given this strong showing of local compliance, the USEPA lifted its order and decided against levying any punitive fines. Those who were here at the time understand that it was a "pretty close call."

This was just one of many examples of environmental issues and concerns we faced at the time. There were, and are, numerous others, which this book discusses and illuminates. Here we seek not just to point out problems, but to also offer the great hope of "integrated resource management." Under this concept, all valid societal, economic, and environmental concerns are considered and integrated within our communities' resource use decisions—and "significant, unmitigated adverse impacts" are not tolerated.

We seek to advance the concept of *sustainably* developing our social, economic, and political regimes, and protecting, for both our children and our children's children, our island's natural resources and our options for our environment's future uses. Such are the responsibilities and necessary qualities of a true "island steward." As each politician and political appointee takes their oath of office—and swears to support, uphold, and defend the Constitution of the CNMI—under our "*right to a clean and healthful environment*" clause, our island leaders promise to each of us to foster exactly this.

Our original book's concept plans eventually jelled into chapter outlines. We developed these into our first draft books. Larry Lee, Michael Quinn, and David Aldan concentrated on the elementary school levels (Grades 1 to 6). Together they produced several excellent reproducible posters and ecology coloring books with grade level science activities.

Howard Cole and this book's editor/lead author (JF) worked on the draft of a combined secondary and post-secondary environmental science textbook. This is the first edition final copy of that earlier effort. We collectively hope that future updates will be pursued. We sought to cover the facts, concepts, and principles needed by our high school and community college stu-

dents—as young adults preparing to take on their citizenship and island ecosystem stewardship responsibilities. The original text contributions of Mr. Cole, ecologist/educator at Tinian High School and later full time faculty instructor for Northern Marianas College, are here gratefully recognized. This project is the combination of much new material from several additional authors, with the original work that Mr. Cole and JF began in 1989. The good works of several earlier writers from the Mariana Islands' archipelago (Guam and the CNMI) are incorporated and acknowledged as well.

Recognizing Earlier Eco-Education Contributions

As academic disciplines, both education and science continuously build upon themselves. Several earlier scientists and eco-educators preceded our company of five to foster environmental education here in our region. Natural scientists ranging in fields from oceanography, geology, botany, and zoology had each conducted and published extensive volumes focusing on our islands' ecology. These are mostly unknown to the average layperson, yet they are available here or via interlibrary loans to those who truly wish to learn and who are willing to conduct good, intensive scientific research.

Some of these scientific reports were also re-interpreted for classroom use. In the 1960's and 70's, a series of booklets called *Science for Micronesia* was developed. In the early 80's, the Government of Guam, in collaboration with the University of Guam and the Guam Education Department, produced several excellent draft booklets, the *Life on Guam* series. The Government of Guam's Department of Aquatic and Wildlife Resources and the Guam Coastal Management Program have developed, and continue to develop, an outstanding collection of easily understood and colorful life form monographs.

In the early to mid-80's, the CNMI Division of Fish and Wildlife published a series of weekly eco-articles in the Marianas Variety newspaper. These articles focused on individual species of concern and on our need for conserving their habitats. Calistro Falig, biologist and former educator for DFW and later Director of Upward Bound at NMC, compiled these into a useful teacher's resource volume. DFW provided each of our islands' schools a copy for every teacher. In 1984, the CNMI Coastal Resources Management Office collaborated with a group of eco-writers (lead writer included), to develop a softbound draft *Workbook for Ocean Sciences*. In 1992, CRM and the CNMI Division of Forestry collaborated with botanists Lynn Raulerson and Agnes Rinehart to produce the first CNMI-focused field guide, *Trees and Shrubs of the Northern Mariana Islands*. With permission, and our WARM THANK YOU'S, both text and graphics from several of these earlier works are integrated into this present work. As our acknowledgments page testifies, the graphic contributions of many off-island colleagues are incorporated as well. Many others helped us both directly and indirectly. Again we are most grateful. With everyone's help, our project moved forward.

In 1991 our draft spiral-bound, black and white booklets were printed by the CNMI Public School System. These drafts were used extensively, being photocopied and re-photocopied—unfortunately, in some cases, to the point of "indecipherability." Re-invigorated during the CNMI's commemoration of the Pacific Year of the Coral Reef in 1997, this work picks up and improves upon Mr. Cole's and JF's original *Island Ecology and Resource Management* draft. Better technology, more time for research, the incorporating and updating of all previous works, the increased level of project-support funding from several federal grant sources, and most especially, the joining to our good cause of new text-contributing colleagues and text-reviewing proof-readers, along with photographers and graphic artists, particularly Mr. Ron Smith of Angil Design, allows us today to bring it to you in this much improved format. We hope you like it.

