

Mori finishes with a chapter on rainforest conservation, in which he describes rainforest ecology and the consequences of land use conversion and fragmentation. In this chapter, Mori makes an exceptionally strong economic case for tropical rainforest protection by focusing on ecosystem services and the value of harvested foods or other commodities provided by the forests.

The book includes appendices that provide information on potential funding sources, and also includes useful checklists of essential equipment. An index is also included to help the reader find important topics.

Throughout this book, the reader senses Mori's enthusiasm and concern for uninformed, naive, or poorly trained tropical botanists. Anecdotes in this book illustrate why it's important to be prepared and not delve into the tropics lightly. The rewards are huge for science and scientists, but the costs can be large and may result in death. Readers will also get a sense of the time and effort required for studies in tropical biology, where five years of collection is the suggested minimum time, though it typically takes a lifetime.

I have few complaints regarding this book, and those I do have are superficial and do not detract from the quality of the information presented. My primary complaint is that many of the photos provided are not clear, especially those showing pathogen infections and insect vectors. Mori discusses the importance of high quality, high resolution photos of plant characteristics, but the examples provided in this book are poor quality, black-and-white dot matrix images. Color plates of high-resolution photographs would have been ideal.

Mori provides addresses, phone numbers, and e-mails of companies that sell the equipment he uses in the field. He also references Google often and specific software packages used for database creation. Obviously these references are fine for the present, but this information will become outdated rather quickly and will certainly not be useful in the future.

This book is not a pocket guide or one I would travel with if space was limited and weight was a factor. Most of the tips and suggestions are hidden in blocks of text, so they may be inaccessible when needed. I would recommend that readers transcribe the information gleaned from this book into their field notebook for quick reference.

In conclusion, the style of Mori's writing makes

the book approachable for scientist and laypersons alike who wish to spend time in the tropics collecting plants. This book is also a great resource for people who are establishing an herbarium or aspire to write floras or monographs. Mori and his colleagues aim to "make the work of tropical biologists safer, easier, and more comfortable." This aim will certainly be achieved if tropical botanists read this book.

-Kevyn J. Juneau, *The School of Forest Resources and Environmental Science, Michigan Technological University, Houghton, MI 49931.*

### **Aldrovanda: The Waterwheel Plant.**

Adam Cross.

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The waterwheel plant, *Aldrovanda vesiculosa*, is one of the most curious of all botanical curiosities. This perennial, rootless, aquatic carnivorous plant is essentially an aquatic Venus' flytrap (*Dionaea muscipula*)—its leaves have been modified into snap-traps—but with growth habits and physiological characteristics much more like the completely unrelated bladderworts (*Utricularia* spp.). *Aldrovanda vesiculosa* is the only species in the genus, and represents one of the three genera in the sundew family (Droseraceae); the other two are the monotypic and aforementioned *Dionaea* and the quite diverse *Drosera*. In spite of the many unique aspects of *Aldrovanda* and well over 150 years of research into all aspects of its biology, there has not until now been a book-length monograph devoted to it. As such, Cross' *Aldrovanda* is a most welcome compendium of information on this plant.

In a relatively short and lavishly illustrated book, Cross summarizes what is known about the taxonomic history; paleobotany and evolution; ecophysiology and morphology; habitat and distribution; population genetics; conservation issues; and methods for cultivation of *Aldrovanda*. Nearly 200 years of literature on the plant—from peer-reviewed through grey to popular—is thoroughly reviewed (the Bibliography itself is 30 pages long), and Cross not only summarizes this literature but also reflects on studies needed to fill

in the gaps in our knowledge on all of these topics. Not bad for a young doctoral student from Western Australia!

Although the summaries of the basic scientific literature are most welcome, probably the most valuable aspect of the book is its discussion and highlighting of the pressing need to protect and conserve *Aldrovanda*. In spite of its geographically widespread distribution—*Aldrovanda* grows in Europe, Asia, Africa, and Australia—and relatively broad tolerance of water chemical characteristics and pH, it is very intolerant of habitat conversion, nutrient loading, or pollution, and so is locally extinct or on the brink thereof throughout its entire range. Some populations are protected and growing, but of 379 natural and restored populations known from historical records, herbarium data, or new observations, only 50 are extant. Similarly, of 69 introduced populations, only 28 are extant, including 10 in the United States, well outside of its natural range. The lengthy tabulation of the status of natural and introduced populations makes depressing reading indeed, but clearly illustrates the conservation challenges faced by many aquatic plants, including *Aldrovanda*.

As with all of the books on carnivorous plants published by Redfern Natural History Productions, the photography is exceptional. The majority of the photographs are by the author, but many others, including well-known experts on *Aldrovanda*

biology, including Lubomír Adamec, Kamil Pasek, and Ryszard Kaminski grace the pages as well. Cross has clearly benefited from his interactions with these individuals, and many others, who not only provided him with great photographs but also fact-checked the manuscript. At the same time, Cross continues in the tradition of other Redfern publications in using the opportunity of a book-length publication to erect new taxa. Herein, only one new variety is formally named: *Aldrovanda vesiculosa* L. var. *rubescens* A. T. Cross & L. Adamec. This variety is distinguished by its expression of anthocyanins in bright habitats and by its geographic restriction to all of Australia, Botswana, and Lake Balata-to in Hungary. It would really have been better to publish a new taxon in a peer-reviewed journal.

*Aldrovanda: The Waterwheel Plant* sets a series of benchmark for future studies of this species. It is not only a book every carnivorous plant aficionado will want on his or her shelf, but it also should be near at hand for botanists focused on the Caryophyllales and for those studying physiology of aquatic plants and how plants move. And it will look pretty on the coffee table, too.

– Aaron M. Ellison, *Harvard Forest, Harvard University, Petersham, Massachusetts, USA*