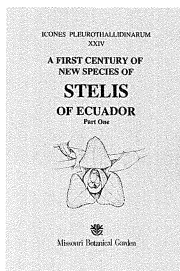


BOOK REVIEWS



ICONES PLEUROTHALLIDINARUM XXIV: A FIRST CENTURY OF NEW SPECIES OF *STELIS* OF ECUADOR

CARLYLE A. LUER

2002. 122 p. \$35.00. Softcover. One color photograph, one map, 106 b/w illustrations. Missouri Botanical Garden Press, St. Louis, MO. www.mbgpress.info. ISBN 1-930723-15-6

This volume of *Icones Pleurothallidarum* presents definitions of 100 new *Stelis* species and includes addenda of 12 *Lepanthes* and 30 other pleurothallid species. Luer defines four sections of *Stelis* based on the connation and position of the sepals. The first five pages are devoted to illustrations that define the parts of the *Stelis* flower and two types of lips. A map of the provinces of Ecuador ends the introduction. Thereafter, each of the 100 new species (another hundred are promised for a later volume) is presented with the Latin definition, an extensive description of the plant and flower, notes on collectors, dates and locations, type, and a short narrative of keynotes. Each species has excellent, detailed drawings of the plant, inflorescence, and flower parts. The addenda follow the same format for the other 42 new species presented.

Luer's presentation of the *Stelis* is organized by section. The 100 species were randomly selected and included plants collected over the last 20 years. An index on the *Stelis* follows treatment of *Stelis* species; the other sections begin with a list of species therein.

The introductory section and the superb drawings heighten awareness of the morphological differences that occur in *Stelis*. The reader, on completing this book, can no longer just say, "It's a *Stelis*," but will be driven to examine the flower closely to see those distinctions described by Luer.

Who should have this book? The obvious answer is libraries and botanical research groups. Anyone who has collected the series needs this as a significant volume. As a stand-alone book in your orchid library, however, it may be sig-

nificant only to those interested in pleurothallids generally or *Stelis* specifically.

What is lacking? Having used this and other volumes in the series, I miss a comprehensive index of the series, most of which is indexed only by volume or section. A comprehensive index would facilitate use of all the volumes. I also wonder if a book is the best way to present this type of botanical information. Each species presentation stands by itself and is ideally organized for electronic data storage, indexing, and presentation. These species are entered in W3 TROPICOS, the database maintained by the Missouri Botanical Garden, which, however, does not electronically provide the descriptions, drawings, and notes of the text.

Carlyle Luer is Senior Curator at the Missouri Botanical Garden Orchid Herbarium (MO) and the leading author on pleurothallids. He earned undergraduate and medical degrees at Washington University–St. Louis, and in 1953 moved to Sarasota, Florida, where he combined an interest in orchids with a medical practice. He served as Marie Selby's surgeon and was a member of the Board of Directors of the Palmer Bank during the reading of her will, which specified that her bayfront estate was to become a botanical garden. It was Luer who convinced the initially unenthusiastic bankers to establish the Marie Selby Botanical Gardens, and it was Luer who recruited Calaway Dodson as first director of Selby Gardens. Dr. Luer currently serves on the Selby Gardens Board of Trustees.

—Ted Kellogg
Professor Emeritus
University of Rhode Island
Kingston, Rhode Island



A TREASURE OF MASDEVALLIA, A MONOGRAPH OF THE GENUS *MASDEVALLIA*, VOLUME 27

CARLYLE A. LUER

2004. 60 p. \$75.25. Elephant-folio format (11½ × 16½ inches). Softcover. 15 watercolor paintings, 15 maps, 18 b/w illustrations. Missouri Botanical Garden Press, St. Louis, MO. www.mbgpress.info. ISBN 1-930723-37-7

This beautiful and authoritative publication of selected *Masdevallia* species contains 15 full botanical descriptions in German and English. The book is illustrated by watercolor paintings and detailed line drawings accompanied by distribution maps.

Scientific descriptions of the plants include a discussion of when and where each species was found, general conditions under which it grows, and a map of its present distribution. Watercolor paintings by Stig Dalström are in natural size. Designed not to fade or discolor, the paintings are printed on 100% acid free archival paper with archival inks. German translations are by Rudolf Jenny, author of *Monograph of the Genus Gongora Ruiz & Pavon*. Volume 27 illustrates the following species:

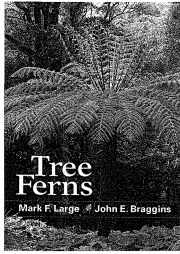
Masdevallia bennettii Luer
Masdevallia deniseana Luer & J.J.Portilla
Masdevallia gloriae Luer & Maduro
Masdevallia immense Luer
Masdevallia instar Luer & A.Andreetta
Masdevallia louii Luer & Dalström
Masdevallia medinae Luer & J.J.Portilla
Masdevallia merinoi Luer & J.J.Portilla
Masdevallia os-viperae Luer & A.Andreetta
Masdevallia pleurothalloides Luer
Masdevallia probosciodea Luer & V.N.M.Rao
Masdevallia rana-aurea Luer
Masdevallia × *splendida* Rchb.f.
Masdevallia stigii Luer & L.Jost

Masdevallia zamorensis Luer & J.J.Portilla

This elephant-folio series, *A Monograph of the Genus Masdevallia*, has to date 27 volumes. Of these, 20 are entitled *Thesaurus Masdevalliarum*, and the last seven volumes are entitled *A Treasure of Masdevallia*. In all, the 7-volume *Treasure of Masdevallia* has taxonomic treatments of 405 species. To complete the series, an estimated 10 additional volumes will be required. Orchidists will want to add Volume 27 to their set, for *A Monograph of the Genus Masdevallia* is destined to be the “Reichenbach” of the future.

Carlyle Luer was a founding member of the Marie Selby Botanical Gardens Board of Trustees, when he announced in 1975 the establishment of the research journal, *Selbyana*, devoted to articles of investigation concerning epiphytic plants. He served as editor of *Selbyana* for 8 years (1975–1982), which remains a record tenure. Over the years, he has written and illustrated 35 articles for the journal on orchid taxonomy. Among his books, in addition to the *Icones Pleurothallidarum* Series, are *Native Orchids of Florida* and *Native Orchids of the United States and Canada*.

—Wesley E. Higgins, Ph.D.
 Head of Systematics
 Marie Selby Botanical Gardens
 Sarasota, Florida, USA



TREE FERNS

MARK F. LARGE AND JOHN E. BRAGGINS

Hardcover. 360 p. 131 plates. \$39.95. Dimensions 1.17 × 10.70 × 7.66 inches. Timber Press (Oregon). May 1, 2004. ISBN: 0881926302

The tree ferns are a distinctive element in wet tropical ecosystems and gardens. They extend surprisingly far outside the tropics in some places, yet they are absent from other seemingly suitable habitats. Non-specialists tend to think of them as stereotyped, because of the hundreds of species we do not easily recognize. The literature is scattered and not too user-friendly.

So it is a pleasure to have a book on tree ferns, done in the usual attractive Timber Press style. Any technical subject evokes many questions, and this book is no exception. The text has some problems and deficiencies that are less welcome; but mentioning these should not be taken as rejection of the potential usefulness of *Tree Ferns*.

The book is concerned with taxonomy and with horticulture, especially in the Australia-New Zealand and USA regions. Some mention is made of human uses of the plants (not very widespread, despite 500 or so species). Most of the habitats given for the species are the expected ones, but a few offer surprises. Several species are epiphytic, at least in part. A few are climbers. *Cyathea alboetacea*, of the Nicobars, grows in coral reef forests, and *C. felina* grows in mangrove swamps from Queensland to New Guinea and Indonesia. *Cyathea tomentosissimum*, of New Guinea, grows in dry places, and its fronds resemble bracken. Could this be mimicry, saving young plants from herbivores, since bracken is toxic?

There are several miniatures, surely desirable items for houseplants. *Cyathea sinuata*, of India and Sri Lanka, has simple strap leaves, giving the appearance of monocots such as *Dracaena*. A few species produce runners, and at least one covers its young leaves with mucilage. The selection of ferns covered is comprehensive, although it omits the genus *Ctenitis*. Inclusion of *Osmunda*, which is not considered a tree fern by most of us in the USA, does little harm to the book.

The section on landscaping focuses on care of individual plants. Needed but not covered is text

on how to use ferns aesthetically, integrating them within the whole garden. Recommendation of the pesticides Captan and Benlate may raise some eyebrows here in Florida; and plates 9 and 10 seem to have their captions switched.

The geographic information and maps needed a critical editor's hand. Text and maps do not agree in many cases. One does not have to be a botanist to consult an atlas, so this problem should not have occurred. There is a checklist in the back of "Tree Ferns by Geographic Regions." It is too broad in its regions. A bit of subdividing would have been more helpful. For example, mixing Hawaii and New Caledonia with Australia and various archipelagoes result in too much discordant information for one list. New Guinea is scattered over several pages, mixed with Indonesia, etc. A few Solomon Islands species are almost hidden in this same section. "Central America," which for some reason includes Mexico, precedes a long list for "South America," which is not subdivided even for the Galapagos or Juan Fernandez. Are there tree ferns on the Chilean mainland? After a lot of searching, I found one near the end of the list. I would expect most readers want to know what grows in Hawaii or in Bolivia, not everything over vast regions.

A major omission from this book is information on the ecological role of tree ferns. They often occur in successional sites such as road cuts and abandoned fields, but they also are prominent in mature cloud forests. Is there a succession of species? Do they shade other plants, inhibit other plants with toxins, alter the soil, affect the drainage, feed insects or other animals? When a tree fern dies and falls over, what happens involving bacteria, fungi, boring animals, and germinating seeds?

Spore dispersal is an intriguing issue. The authors make a good case that these are old families, even genera, yet very actively speciating today. Many species are highly localized, yet some have wide ranges, even across large ocean barriers. Spore production is enormous. Whether

it is 600 million or 6 billion per frond per year, the numbers add up. Fern specialists R.M. Tryon and A.F. Tryon have cited 1.25 trillion spores during one tree fern's lifetime. A lot of resources are invested by one plant releasing 2 kilograms of spores per year. In a solid stand, with trunks spaced every 5 m, that means 400 plants producing 800 kg (nearly a ton of spores) per hectare each year. This production is more or less repeated the next year and the year after that, and it continues. For the last 200 million years, certain parts of the planet have repeated this scene. What becomes of this organic matter? What role do all these spores play in the local ecology? In fact, do they inflict respiratory traumas on humans and animals?

Rain must knock many of these spores down, and usually close to their sources. Do they act as condensation nuclei for rain? A few spores go off to far places, even other continents. Does the balance between local and far help explain speciation rates in tree ferns? I offer these questions to biologists in general. Most of us don't really care much if one more endemic *Cyathea* species turns up, but connecting these plants to broader ecological and evolutionary issues does matter.

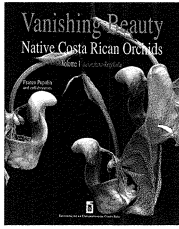
That brings me to conservation. The text says that tree ferns are endangered by trade (mostly horticultural, for live plants and dead trunks) and by habitat destruction. That seems broadly reasonable. No indication is given that epidemics strike the populations. Some local endemics must be subject to volcanic dangers. Some of these species, however, actively colonize new lava and ash. Let us accept trade and land clearing as the big worldwide threats, even though no figures are estimated for either kind of loss. Ex-situ preservation of the species should be possible. The notes on growing the plants should be very useful if applied to this. The book mentions that plantations have arisen to supply the trade. These could reduce wild collecting significantly. What protocols could be useful for restoration and mitigation plantings in the wild?

Most gardeners and botanists seem to admire the beauty of tree ferns. The enthusiasm rarely rises to the level associated with orchids, bromeliads, bulbs, roses, camellias, or even conifers and *Platycerium* ferns. In providing us with a handy reference, this book should (let us hope) increase enthusiasm for tree ferns. If biologists pay more attention to fern ecology that also will be very much to the good. Not all fern species are equally useful as orchid-growing media, and some orchidists have unkind words for them as a result. Also, some horticulturalists find the fibers and dust irritating when handling the plants. One nurseryman I knew years ago liked the beauty of ferns, but avoided them. He spent World War II as a Marine in the Pacific. On night patrols anyone who bumped into a tree fern trunk got a lot of irritating debris on their face and down their shirt. When silence was a life-or-death matter, it was easy to become unhappy with tree ferns. Aside from such cases, most of us will happily find this book a useful first step to becoming tree fern fans.

Mark F. Large's interest in fern evolution and paleobotany spans 20 years. He has authored numerous fern publications and acted as a botanical consultant for the popular television series *Walking with Dinosaurs*. As an associate professor of botany, he heads the School of Landscape and Plant Science at UNITEC Institute of Technology, Auckland, New Zealand.

John E. Braggins taught botany at the University of Auckland for more than 30 years before taking early retirement. Braggins has traveled widely through Asia, Africa, and the Pacific to study ferns. He has published more than 40 papers and is a freelance botanical consultant based in Auckland, New Zealand.

—John Beckner
Adjunct Professor
Ringling School of Art and Design
Sarasota, Florida



VANISHING BEAUTY. NATIVE COSTA RICAN ORCHIDS
VOL. 1— *ACIANTHERA*—*KEGELIELLA*

FRANCO PUPULIN AND COLLABORATORS

2005. 421 p. \$140. Hardcover. 450 color photos. 13 × 10 inches. English edition. Editorial de la Universidad de Costa Rica, San José, Costa Rica. ISBN 9977679568

Vanishing Beauty is a tribute by Universidad de Costa Rica to the surprising diversity and fragile beauty of the native Costa Rican orchids. Costa Rica has more than 1400 species of orchids, the highest number in Central America. The comprehensive three-volume set will represent a major inventory of orchids of Costa Rica, illustrating in detail the 180 genera with more than 1000 photographs. This illustrated account of Costa Rican orchids recognizes the tradition of research and conservation at Jardín Botánico Lankester.

Formal portraits of each plant enhance their inherent uniqueness. The photographs were taken in natural diffused light using fine-grained, high-contrast film that yields vivid greens and saturated colors. One third of the photographs are full-page illustrations. This first volume covers the genera *Acianthera* to *Kegeliella*. The classification system used in the text follows the molecular-based taxonomy published in *Genera Orchidacearum*.

A 20-page introduction to orchidology in Costa Rica informs and fascinates the reader, beginning with the pre-Columbian ethnobotanical use of orchids. An index to the scientific names promises to be useful, as it includes synonyms and short biographies of the book's collaborating authors. Five new taxonomic novelties are published in Volume 1.

Chondroscaphe yamilethae
Comparettia falcate f. *alba*
Dichaea filiarum
Eulophia alta var. *pachystelidia*
Galeandra arundinis

The text that accompanies this photographic

journey through the incomparable diversity of Costa Rican orchids was written by renowned specialists on neotropical Orchidaceae (18 scientific collaborators from seven countries), most of them long associated with the Jardín Botánico Lankester of the Universidad de Costa Rica through friendship and scientific cooperation. They are John T. Atwood, Diego Bogarín, Germán Carnevali, Mark W. Chase, Stig Dalström, Calaway H. Dodson, Robert L. Dressler, Leslie A. Garay, Günter Gerlach, Eric Hågsater, Carlyle A. Luer, Isidro Ojeda Alayón, Carlos Ossensbach, Alec M. Pridgeon, Gerardo A. Salazar, Gustavo A. Romero-González, Miguel Ángel Soto Arenas, and Norris H. Williams.

This beautiful book will be a welcome addition to any orchid library. The English language edition has a limited publication run of 1320 copies. This series is a "must have" for orchid aficionados.

Franco Pupulin is a senior professor at the Universidad de Costa Rica, where he works as a researcher at the Jardín Botánico Lankester. A Research Associate of the Marie Selby Botanical Gardens (USA), member of the Orchid Specialist Group of the IUCN/SSC, and a Taxonomic Authority approved by the American Orchid Society, he is a specialist on the orchid flora of Costa Rica and Mesoamerica and author of more than 60 scientific papers and two books on these topics.

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