BOOK REVIEW: **Etlingera of Sulawesi. *A.D. Poulsen.*** 2012.
Kota Kinabalu: Natural History Publications (Borneo) Sdn. Bhd. in association with Royal Botanic Garden Edinburgh and Natural History Museum, University of Oslo. 26 cm × 19 cm, hard cover, vii + 278 pp. ISBN 978-983-812-138-5. Price RM 250.

The ginger genus *Etlingera* is well known through the magnificent Torch Ginger cultivated throughout the tropics and used in SE Asian cooking. But there is more to *Etlingera*. The genus is both large and morphologically diverse with the total number of species still pending, but estimated by the author to be 150–200 species. All *Etlingera* species are evergreen and are found mostly in equatorial evergreen forests, growing from lowlands to high altitudes of 2700 m. The distribution of this genus spans over 14,000 km, with its western limit in Northeast India, richly represented across SE Asia and reaching its eastern limit in the Pacific island of Tahiti.

It has been 6 years since Axel Poulsen's previous book *Etlingera of Borneo* (2006, same publisher) and it is obvious that the author has been rather busy getting yet another stunning book out. It is dedicated to the memory of British naturalist Alfred Russel Wallace (1823–1913), an avid explorer, geographer, anthropologist and biologist, who is well known for identifying the Wallace line, dividing the Indonesian archipelago into the ecozones of Asia and Wallacea—a transitional zone between Asia and Australia.

Sulawesi is located in the western part of Wallacea and therefore it is no big surprise that its flora is strikingly different from neighbouring Borneo. The flora is also far less known and this book reflects perfectly the uniqueness and richness of the Sulawesi flora as well as the poor state of our knowledge. Only 4 *Etlingera* species have been known to occur in Sulawesi in 2008, when the author started his work, but the current revision presents 48 taxa—an increase of more than 10 fold! It is noteworthy that Borneo which has only 42 taxa is about 4 times bigger than Sulawesi, and as the author pointed out, he spent far less time in the field in Sulawesi than in Borneo, hinting that more species are yet to be found in Sulawesi. The only species common between the two islands is the ubiquitous Torch Ginger (*Etlingera elatior*). The readers familiar with usually red, orange and yellow Bornean species will be surprised with an entirely different colour palette of cream, pink and yellow-green Sulawesi species instead.

The book is divided into three parts, which are clearly marked by coloured headers. The first part of the book is divided into 5 major chapters. The brief introduction recapitulates basic facts about the genus *Etlingera*, while the second chapter, accompanied by 8 dated maps, explains Sulawesi's complicated geological history and touches on its climate and geology. The third chapter deals with the morphology of an *Etlingera* plant. It describes in detail the characters of vegetative and flowering shoots, flowers, infructescences, fruits and seeds. The five very detailed SEM photographs of stigmas could present somewhat amusing and scary images to the imaginative viewer, while the line-drawing of various fruit types drawn to scale and spreading over two pages is helpful for identification.

The fourth chapter starts with the history of ginger research on Sulawesi, recapitulating the importance of botanists collecting there, for example, C.G.C. Reinwardt, O. Beccari, O. Warburg, the brothers P.B. and K.F. Sarasin, but also mentioning others like F. Gagnepain and K. Schumman, who described species based on others' collections. Informal infrageneric groupings, origin and evolution, the significance of Wallace's Line and affinities to neighbouring islands, as well as ecology, pollination, flexistyly, ethnobotany and conservation issues are also discussed in this chapter.

The last fifth chapter of the introductory part describes material and methods. The author shares the dire situation of starting a revision, with most of the types in the Berlin Herbarium destroyed during the Second World War and how the extensive fieldwork targeting all type localities proved to be a successful strategy, as fertile material was found for all but one species. The comparison between Sulawesi, where the majority of the species are known only from single or very few collections, and Borneo, where multiple collections exists for most of the species, is nicely summarised in Figure 37. Beware of the printing hobgoblin, who switched the signs Borneo and Sulawesi in the chart itself, though the careful reader should not be misled as the legend is well composed. This chapter also discusses the methodology of collecting notoriously difficult gingers with specific notes on *Etlingera*, and explains terminology used in the descriptions, how the collections were measured, as well as the species concept used in this revision. The key to the species is the last item of the introductory part before the real *Etlingera* show starts.

The main bulk of the book is dedicated to the 48 taxa, which are arranged alphabetically. This includes 36 new species, two subspecies, one new name and six new combinations for species, which have been previously recognised as members of other ginger genera, e.g., *Amomum.* Six new synonyms are also recognised. Each taxon has been provided with a detailed description, followed by local names and uses, etymology, ecology and habitat, distribution, conservation status, other material examined, and finally, other notes. This is supplemented by a nice distribution map, drawings of the floral parts and numerous colour photographs showing in great detail the inflorescences, flowers, ligules, fruits and other important characters. In species with complex nomenclature or taxonomy, such as *Etlingera alba*, images of the original herbarium material are also provided with detailed notes on new synonymy and selection of lectotype. The account closes with a list of specimens, some of which may still turn out to be new taxa, but at present there is no adequate material for their description; there is also an accompanying taxonomic note regarding *Amomum* names that have been investigated and proven not to be *Etlingera* species (as many elsewhere have turned out to be the latter genus).

The third and last part of the book is dedicated to acknowledgements and the useful necessities—references, identification list, indexes to vernacular names, uses and scientific names.

Etlingera of Sulawesi is a modern, critical revision based on the author's solid study of herbarium material as well as fieldwork. There is no doubt that the author loves his work, loves his plants and enjoys writing books. Kudos are also due to the

publisher for a beautiful layout, which blends well with the scientific text and ink illustrations, with colour photographs and other pictures of habitats, old maps and some hitherto unpublished historical photographs. I find this book supremely well done, enjoyable throughout and easy to use. Considering the minimal overlap with the previous *Etlingera of Borneo*, the two books together cover some 88 species, which is more than half of the currently known species. And the Etlingeras? Some are simply stunning, while others are enjoyably strange as demonstrated right on the cover of the book, ensuring some 'oohs' and 'aahs' for anyone who picks up this book for serious professional interest, or just out of curiosity.

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