

A Catalogue of the Vascular Plants of Malaya

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Abstract

An annotated check-list of the native and naturalized vascular plant species of Peninsular Malaysia and the Republic of Singapore is presented. The catalogue includes important synonyms, a brief description and notes on the habitat and distribution of each species.

Introduction

There has been no attempt, at least in recent times, to bring together the vascular plant flora of the Malay Peninsula in a single published list. Ridley completed publication of his *Flora of the Malay Peninsula* in 1925, which did not include the pteridophytes, though he published lists of the ferns and fern allies elsewhere (Ridley 1908, 1919, 1926). Our taxonomic understanding of the plants of this area has improved greatly since Ridley completed his monumental flora; many families have been treated in *Flora Malesiana*, the trees have been monographed in the four volumes of the *Tree Flora of Malaya*, books containing authoritative treatments of the ferns, grasses and orchids (Holtum 1964, 1968, Gilliland 1971, Seidenfaden & Wood 1992) have appeared, and countless articles in taxonomic journals revising different groups have been published. Over the last seventy years many new species have been described, nomenclatural mistakes have been corrected, true identities discerned and generic and family limits redefined. The information regarding these changes is spread across a vast array of literature, not easily available in the area of the flora itself. I believe one solution to this problem is a new catalogue of the vascular plants of the Malay Peninsula which contains references to the important, but disparate, literature relevant to the Malayan flora. A complete flora with full keys and descriptions would undoubtedly be even more useful, but such a work would take many years and considerable resources to complete. In the interim the catalogue will direct the reader to the places where the sort of information a flora would contain can be found.

Area Covered

The Malay Peninsula is the extension of Continental Asia pointing southward from Indochina which divides the Andaman Sea and the Strait of Malacca from the South China Sea. Politically, the Peninsula includes the territory of Thailand

and Malaysia. Most of the Malay Peninsula has an everwet tropical climate and supports tropical rain forest vegetation. The northern part is climatically more seasonal and the Isthmus of Kra is considered to be the site of an ecotone between the evergreen and periodically deciduous forests (Whitmore 1975). This boundary is also an important phylogeographic one, and represents one of the main demarcation knots defining the floristic region known as Malesia (van Steenis 1948). While a small part of Malesia is found in the far south of Thailand, there are considerable problems encountered in trying to localize botanical collections in this area. To simplify this matter, the current catalogue has taken the border between Malaysia and Thailand as the northern limit for inclusion. Therefore several species, such as *Didissandra flummea* Ridl. and *Paraboea lancifolia* (Ridl.) B.L. Burt. that were included by Ridley in his flora, have been omitted because they have yet to be recorded from Peninsular Malaysia or Singapore.

The island of Singapore nestles in the tip of the Peninsula, and because of historic and biogeographic affinities it appears reasonable to include the Republic of Singapore in the catalogue. Similarly, all the offshore islands that are part of the territory of the eleven states that make up Peninsular Malaysia are included as well.

Species Included

Species of vascular plant have been included in the catalogue if they are believed to exist as self-sustaining populations in the wild of Peninsular Malaysia or Singapore. An attempt has been made to distinguish between native and naturalized species, but for some, particularly weeds, it is difficult to be certain of their true origins. Species only found in cultivation, or recorded as rare escapes are omitted.

Classification System and Order of Presentation

I have followed Brummit (1992) for the classification of the flora, strictly for the delimitation of families, and with only a few exceptions for the recognition of genera. The 'Kew System' has the advantage of being one of the few that includes pteridophytes as well as spermatophytes, and is also fairly conservative. The flora is first divided into the traditional major groups which are presented in the order: fern-allies, ferns, gymnosperms, dicots and monocots. Within each major group, the families are given in alphabetical order, with genera and species listed for each in alphabetical order also. Before the catalogue proper, a conspectus of genera recognized for each family is presented in the same order as in the catalogue, with some summary statistics of the numbers of species in each genus and the number of genera and species in each family.

Intraspecific taxa down to the rank of variety are included in the catalogue. Taxa below this rank, such as forma, are omitted. A binomial implies the type subspecies or variety, but should not be taken as a definitive statement on this matter.

Species Entry Format

The entry in the catalogue for each species can be summarized as follows:

code number **accepted name**, reference; *synonym*, reference;
description; habitat; distribution; biogeographic status.

code number

Each taxon is referred to by a code (e.g. 57.2.12) of three numbers separated by stops. The first number refers to the family, the second the genus and the third the species. When a species is represented by more than one infraspecific taxon then each is separately referred to by suffixed letters beginning from a.

accepted name

The taxonomically correct name is given in bold type at the start of each entry. Generic names are spelled in line with Brummitt (1992) and are taken to follow the gender indicated by Greuter *et al.* (1993). Authors are abbreviated following Brummitt and Powell (1992).

references

After each taxon name comes one or more references to its use, generally including one that contains an adequate description of the species. Each reference consists of a reference code and the page number on which the name in question is employed. The reference code leads to the appropriate full entry in the list of references. I make no apology for not abbreviating the bibliography entries, because I know from bitter experience that the much-abridged references of many taxonomic works are often very difficult for those with limited library resources to track down and obtain copies. Several important works are abbreviated separately, as given at the start of the list.

description

A very brief description is given for most species, generally consisting of an indication of life-form and some measure of size at maturity.

habitat

The general habitat of the species is given, often being reduced to lowland (or hill, or montane) forest.

distribution

The distribution of each species within Malaya is summarized. Wherever possible this is done by listing the states (the eleven states of Peninsular Malaysia and the Republic of Singapore) from which the species has been recorded. To save space the states have been given standard abbreviations and are listed in a standard sequence that reflects a north-to-south progression of the approximate geographic centres of the territories concerned. The abbreviations and order are as follows:

Ps = Perlis

Kd = Kedah

Pn = Penang (Pulau Pinang)
 Kl = Kelantan
 Tg = Trengganu (Terengganu)
 Pk = Perak
 Ph = Pahang
 Sl = Selangor
 NS = Negeri Sembilan
 Ml = Malacca (Melaka)
 Jh = Johore (Johor)
 Sp = Singapore (Singapura)

When a species is only known from one or two locations, these are given with the following standard abbreviations:

P. = Pulau (Island)
 Bt = Bukit (Hill)
 Gg = Gunung (Mount)
 Sg = Sungei (River)
 F.R. = Forest Reserve

Biogeographic status

Endemic species, i.e. those not known from areas outside Malaya; are indicated as such at the end of their entry. Taxa that are naturalized have this information at the end of their entry together with an indication of their geographic origins where this is known.

Concluding Remarks

My main reason for embarking on the compilation of this catalogue was the hope that it would prove useful to people interested in the plants of the Malay Peninsula, and maybe surrounding areas as well. I have attempted to make the list as accurate as possible, and am extremely grateful to a number of experts (see acknowledgements) in various plant groups who have critically scrutinized various preliminary drafts. Ultimately, I must accept responsibility for any errors the work contains, and would be grateful to have them pointed out to me.

The perception gained from wading through the literature on the Malayan flora is that by the general standards of the humid tropics this area has a very well-known flora. Yet, the catalogue contains many undescribed species, and new species are being described regularly despite the relatively few botanists working on the flora. It is evident that a lot of work still needs to be conducted before even the basic inventory of the botanical resources of the Malay Peninsula is complete.

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References

- Brummitt, R.K. (1992) *Vascular plant families and genera*. Royal Botanic Gardens, Kew.
- Brummitt, R.K., & Powell, C.E. (1992) *Authors of plant names*. Royal Botanic Gardens, Kew.
- Gilliland, H.B. (1971) *A revised flora of Malaya. Volume III. Grasses of Malaya*. Botanic Gardens, Singapore.
- Greuter, W., Brummitt, R.K., Farr, E., Kilian, N., Kirk, P.M., & Silva, P.C. (1993) Names in current use for extant plant genera. *Regnum Vegetabile* 129: 1-1464.
- Holttum, R.E. (1964). *A revised flora of Malaya. Volume I. Orchids of Malaya*. Government Printing Office, Singapore.
- Holttum, R.E. (1968). *A revised flora of Malaya. Volume II. Ferns of Malaya*. Second Edition. Government Printing Office, Singapore.
- Ridley, H.N. (1908) A list of the ferns of the Malay Peninsula. *Journal of the Straits Branch of the Royal Asiatic Society* 50: 1-59.
- Ridley, H.N. (1919) The fern-allies and Characeae of the Malay Peninsula. *Journal of the Straits Branch of the Royal Asiatic Society* 80: 139-164.
- Ridley, H.N. (1926) The ferns of the Malay Peninsula. *Journal of the Malayan Branch of the Royal Asiatic Society* 4: 1-121.
- Seidenfaden, G., & Wood, J.J. (1992) *The orchids of Peninsular Malaysia and Singapore*. Olsen & Olsen, Fredensborg.
- van Steenis, C.G.G.J. (1948) Introduction. *Flora Malesiana, series I* 4: V-XII.
- Whitmore, T.C. (1975) *Tropical rain forests of the Far East*. Clarendon Press, Oxford.