

A SYNOPSIS OF MATTHAEA (MONIMIACEAE)

W. R. PHILIPSON

Department of Botany, University of Canterbury,
Christchurch, New Zealand.

SUMMARY

Revision of the genus which centres in the Philippines; precursor to treatment in Flora Malesiana. There is a key to the species but no descriptions. Six species are accepted, 2 names are reduced for the first time, 1 name is excluded, 1 is imperfectly known. Difference with the allied genus *Steganthera* is discussed.

The genus *Matthaea* is confined to the Malesian region. It comprises five species, one of which, *M. sancta* Bl., has a wide range (Sumatra, Peninsular Malaya, the Anamba Islands, Sarawak, Sabah, Kalimantan, Celebes and the Philippines) while the other four species are virtually confined to the Philippines (one, *M. chartacea* Merr. extends to the neighbouring Talaud Islands) (Fig. 1).

The two principal characters employed by Perkins to distinguish between species (Pflanzenreich Heft 49, Nachtr. 1911), namely the entire or toothed leaf margin, and the solitary or racemose flower arrangement, are not supported by the material now available. Even so, no species of this genus is adequately represented in herbaria, and in particular more specimens bearing male flowers are needed before a satisfactory treatment can be given. Two groups of species can be recognized on morphological grounds. First, *M. chartacea* Merr. (including *M. williamsii* Perkins and *M. pinchotiana* Perkins) and *M. pubescens* Merr. are similar in leaf shape and texture, but differ in the persistence of the brownish tomentum on the young shoots and the lower surface of the leaves of the latter species. This distinction is supported by their distinct geographical ranges. In the second group the leaves of *M. sancta* Bl. have a characteristic facies, having a narrower blade than the two species in the first group, with more evident venation, but the shape and size of the leaf is variable. Several specific names have been applied to plants with different leaf forms over its wide range (*M. latifolia* Perkins in Peninsular Malaya; *M. calophylla* Perkins in Borneo; *M. ellipsoidea* Merr. in the Philippines and the varieties *venulosa* Perkins and *mindanaoensis* Perkins also in the Philippines). However, it has not been found possible to define discrete taxa and consequently a broad interpretation of *M. sancta* Bl. is adopted here and all these names are treated as synonyms. Three local Philippine species rather closely related to *R. sancta*, but apparently distinct, are retained: 1, *M. heterophylla* Quisumb. & Merr. with long lanceolate leaves; 2, *M. vidalii* Perkins with consistently smaller leaves; and 3, *M. intermedia* Merr. with olivaceous obscurely veined leaves.

M. williamsii Perkins and *M. ellipsoidea* Merr. are reduced to synonymy for the first

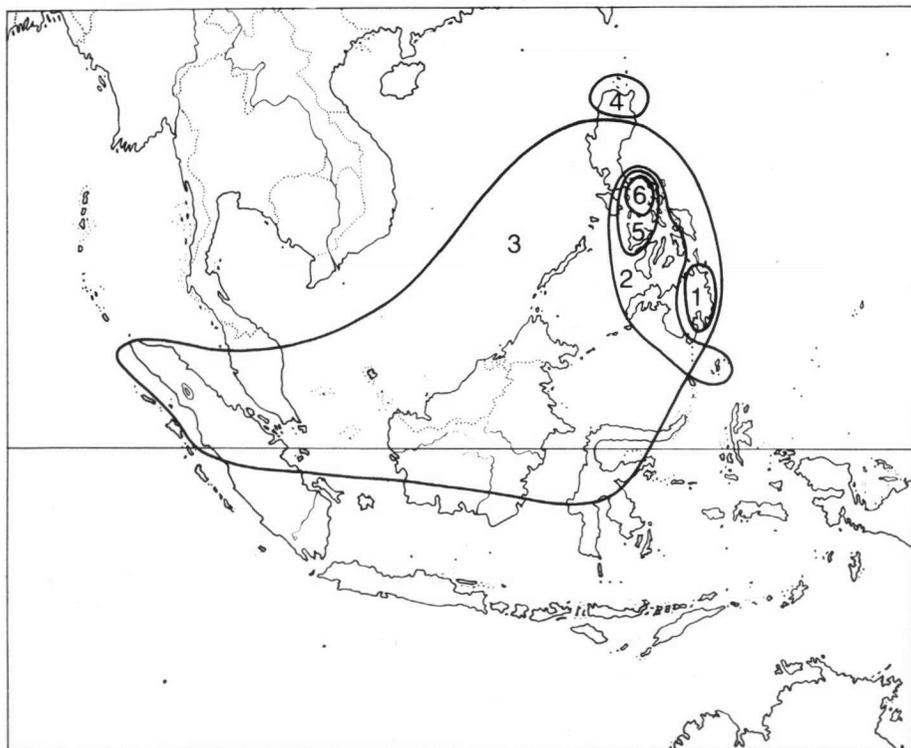


Fig. 1. Map of the species of *Matthaea*. — 1. *M. pubescens*; 2. *M. chartacea*; 3. *M. sancta*; 4. *M. heterophylla*; 5. *M. vidalii*; 6. *M. intermedia*.

time, and *M. roemeri* Perkins is excluded (= *Kibara*). As no material of *M. philippinensis* Perkins has been seen, it could not be included in the key.

The distinction between *Matthaea* and *Steganthera* is very slight. The two genera are so alike vegetatively that sterile specimens cannot be allocated to a genus with confidence, and their flowers and fruits are also very similar except for their anthers. In both genera there are four stamens; in *Matthaea* these bear anthers opening by two more or less vertical slits, whereas in *Steganthera* the anthers open by a single horizontal slit. It is useful to maintain the two genera because they are geographically separated (though both may occur in Celebes). *Matthaea* is restricted to western Malesia (Fig. 1) while *Steganthera*, a considerably larger genus, is centered on New Guinea with outliers in the Moluccas, Celebes and Queensland. Some uncertainties of range remain as male flowers and fruits are not available from several areas.

MATTHAEA

Matthaea Blume, Ann. Mus. Bot. Lugd. Bat. 2 (1856) 89; Perkins, Bot. Jahrb. 25 (1898) 562; Pflanzenreich Heft 49, Nachtr. (1911) 15.

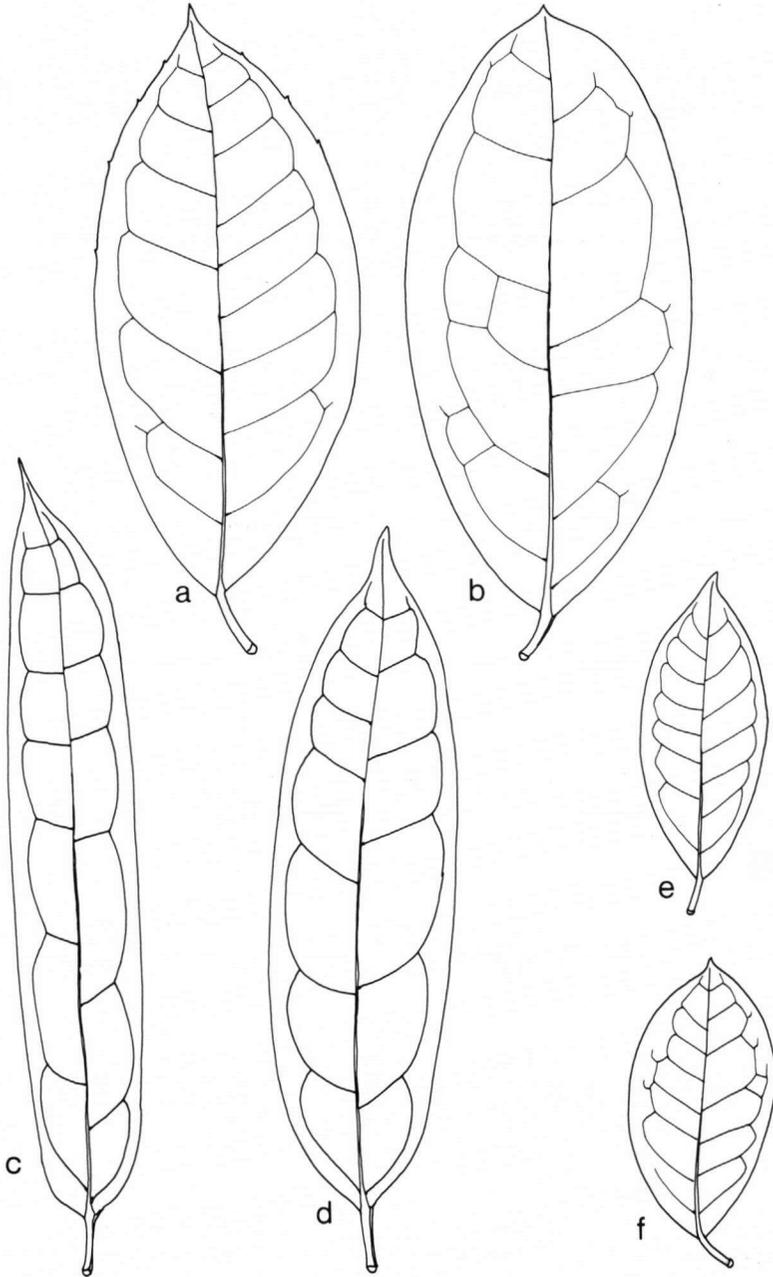


Fig. 2. Leaves of *Matthaea* species, all $\times \frac{1}{2}$. — a. *M. chartacea* (Ramos and Edaño Bur. Sci. 40705); b. *M. pubescens* (Elmer 10699); c. *M. heterophylla* (Edaño Bur. Sci. 78395); d. *M. sancta* (Ridley 10770); e. *M. vidalii* (Ramos and Edaño Bur. Sci. 30718); f. *M. intermedia* (Alcasid and Edaño PNH 4480).

Shrubs or small trees. *Leaves* simple, opposite, exstipulate, pubescent or glabrous at maturity, entire or dentate. Monoecious, with lateral (rarely also terminal) cymose *inflorescences*, much shorter than the leaves. *Male receptacle* subglobose, the ostiole surrounded by 4 small rounded tepals. *Stamens* 4, free; filaments short; anthers opening by 2 longitudinal slits. *Female receptacle* more flattened, tepals 4, upper half abscising as a calyptra at anthesis to reveal very numerous carpels. *Drapes* long stipitate, surface verruculate.

KEY TO THE SPECIES

- 1a. Under surface of leaf pubescent **1. *M. pubescens***
- b. Under surface of leaf glabrous 2
- 2a. Leaf blade more than 15 cm long 3
- b. Leaf blade less than 15 cm long 5
- 3a. Principal lateral veins of under surface prominent, raised above the surface; lamina usually oblong-lanceolate to lanceolate 4
- b. Principal lateral veins of under surface less distinct, scarcely raised above the surface; lamina usually elliptic to broadly elliptic **2. *M. chartacea***
- 4a. Lamina oblong-elliptic to narrowly oblong **3. *M. sancta***
- b. Lamina lanceolate (northern Luzon) **4. *M. heterophylla***
- 5a. Lamina lanceolate-oblong **4. *M. heterophylla***
- b. Lamina elliptic or elliptic-oblong 6
- 6a. Venation of lower surface prominent, raised above the surface; lamina, petiole and young branches green. **5. *M. vidalii***
- b. Venation of lower surface less distinct, scarcely raised above the surface; lamina, petiole and young branches olivaceous **6. *M. intermedia***

1. *Matthaea pubescens* Merr. ex Perkins — Fig. 1-1, 2b.

Matthaea pubescens Merr. ex Perkins in Bot. Jahrb. 45 (1911) 422.

D i s t r i b u t i o n: Philippines: Mindanao; Agusan, Surigao; Bukidnon; and Davao Provinces.

E c o l o g y: In dense often mossy forest, 300–1700 m.

2. *Matthaea chartacea* Merr. — Fig. 1-2, 2a.

Matthaea chartacea Merr. in Dept. Int. Bur. Gov. Labor. Bull. 35 (1905) 14.

M. williamsii Perkins in Bot. Jahrb. 45 (1911) 422.

M. Pinchotiana Perkins in Bot. Jahrb. 45 (1911) 423.

D i s t r i b u t i o n: Philippines: Luzon; Laguna and Tayabas Provinces. Mindoro. Leyte. Mindanao; Zamboanga Province. Talaud Islands, Karakelong.

E c o l o g y: In dense forest and second growth, up to 700 m.

N o t e s: Similar to *M. pubescens* except for the lack of pubescence. Although both species occur on Mindanao their ranges do not overlap, *M. chartacea* being confined to the west and *M. pubescens* to the east.

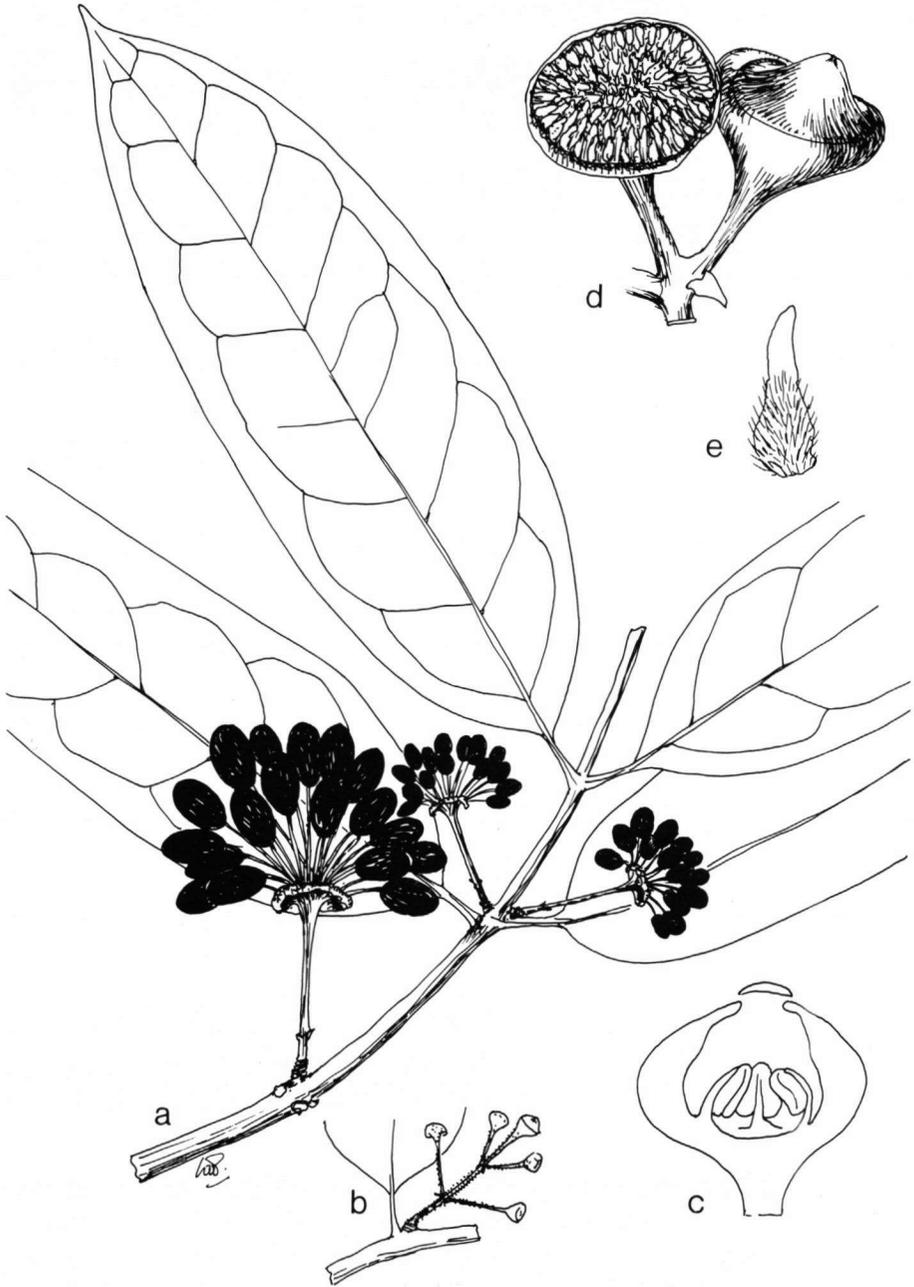


Fig. 3. *Matthaea sancta*. a. branch with developing fruits, $\times \frac{1}{2}$; b. male inflorescence, $\times \frac{1}{2}$; c. LS male flower, $\times 7$; d. female flowers; to the left with the carpels exposed, and to the right with the calytra still in place, $\times 5$; e. single carpel with prominent stigma, $\times 12$.

3. *Matthaea sancta* Blume — Fig. 1–3, 2d, 3.

Matthaea sancta Blume in Ann. Mus. Bot. Lugd.-Bat. 2 (1856) 90.

M. latifolia Perkins in Bot. Jahrb. 25 (1898) 263.

M. calophylla Perkins in Bot. Jahrb. 25 (1898) 263.

M. ellipsoidea Merr. ex Perkins. Bot. Jahrb. 45 (1911) 423.

M. sancta var. *mindanaoensis* Perkins in Pflanzenreich Heft 49, Nachtr. (1911) 18.

M. sancta var. *venulosa* Perkins in Pflanzenreich Heft 49, Nachtr. (1911) 19.

D i s t r i b u t i o n: Malaya Peninsula: Perak and Pahang to Singapore; Sumatra; Anambas Islands; Sarawak; Sabah; Kalimantan; Celebes; Philippines: Luzon, Negros, Cebu, Mindanao.

E c o l o g y: Small tree or shrub, sometimes scandent, in forest from low altitudes to 1200 m.

N o t e: The only species with a wide geographical range. Leaf size and breadth are variable, as in the degree of toothiness of the margin. Typical leaves are narrowly oblong, apiculate, and with distant, prominent, strongly arched lateral veins. Broader and more coarsely toothed leaves appear to occur more frequently to the east of its range, but no basis for subspecific taxa can be discerned.

4. *Matthaea heterophylla* Quisumb. & Merr. — Fig. 1–4, 2c.

Matthaea heterophylla Quisumb. & Merr. in Philipp. Journ. Sci. (1928) Bot. 145.

D i s t r i b u t i o n: Philippines: Luzon; Isabella and Cagayan Provinces.

E c o l o g y: In forests, about 1200–1350 m.

N o t e: A local species from northern Luzon apparently outside the range of *M. sancta*. Characterized by the narrow elongated leaves, with major lateral veins widely spaced and running out straight from the mid-rib very nearly at right angles.

5. *Matthaea vidalii* Perkins — Fig. 1–5, 2e.

Matthaea vidalii Perkins in Bot. Jahrb. 45 (1911) 422.

D i s t r i b u t i o n: Philippines: Luzon; Camarines Sur and Sorsogon Provinces. Panay; Caping Province.

E c o l o g y: Occurring from 600–5000 m.

N o t e: This species occurs within the range of *M. sancta* which it approaches. The smaller, more coriaceous and more elliptic leaves appear consistently distinct.

6. *Matthaea intermedia* Merr. — Fig. 1–6, 2f.

Matthaea intermedia Merr. in Philipp. Journ. Sci. 13 (1925) Bot. 11.

D i s t r i b u t i o n: Philippines: Luzon, Tayabas Province.

E c o l o g y: In forests, about 1000 m.

N o t e: A local species from the central Philippines, resembling the neighbouring *M. vidalii* in size and shape of leaf, but differing in the less prominent venation on the lower surface, and particularly in the brown-olivaceous colour of the leaves, petioles and young branches.

INSUFFICIENTLY KNOWN SPECIES

M. philippinensis Perkins in Bot. Jahrb. 45 (1911) 423. No specimens have been seen.

EXCLUDED SPECIES

M. roemeri Perkins in Pflanzenreich, Heft 49, Nachtr. (1911) 17 = Kibara.