

ADDENDA, CORRIGENDA ET EMENDANDA

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At times colleagues have asked me whether my effort to collect the *Addenda, Corrigenda et Emendanda* was worthwhile.

The main purpose is to keep readers up to date with the plants of Malesia in one work and keep them aware of additions, name changes, etc.

They are also important as a source for plant-geographical purposes, to correct names of useful plants, etc.

Another facet of keeping up with the records is that they reflect the degree of completeness of collections at the time of the original revision, and form a certain check on the degree of exploration.

In an overall review of the 'Floristic inventory of the Tropics: Where do we stand?' PRANCE has made use of the *Addenda* in comparing the state of exploration in the neotropics with that of Africa and Malesia (Ann. Mo. Bot. Gard. 64, 1977, 657-685, especially p. 671). He found the number of *addenda* and novelties much larger in the neotropics than in Malesia, obviously due to a lower, and especially less varied exploration (collecting density). This comparison tends to support my conviction that the bulk of the Malesian species has become gradually represented in the herbarium.

It was pleasant to experience that the careful keeping on record of the *Addenda* serves good purposes and should therefore be continued.

Printing errors have only been corrected if they might give rise to confusion.

Volume and page number are separated by a colon. Page numbers provided with either *a* or *b* denote the left and right columns of a page respectively.

Alismataceae

- 5: 319, 320a *Caldesia parnassifolia* (BASSI ex L.) PARL.
In Malesia a very rare plant (see map in Fl. Males. I, 5: 322, fig. 3). In New Guinea it was only known from Cape Vogel Peninsula, but it is now also collected in West New Guinea: Star Mts, Sibil Valley, 1200-1300 m (KALKMAN 4188) and in Papua New Guinea: Kubor Ra., Nona Minj Divide, 1920 m (VINK 16512); Morobe Distr., 15 miles west of Lae, 150 m (HARTLEY 9778) and near Mumeng, 950 m (W. MOI 166). In the last-named collection the inflorescence consists of only one whorl of 3 flowers and a terminal flower.

Anacardiaceae (DING HOU)

- 8: 483 *Spondias pinnata* (L. f.) KURZ.
KOSTERMANS (Quart. J. Taiwan Mus. 34, 1981, 108-111) suggested that what was named *Spondias pinnata* from Malesia (Malaya to New Guinea) would differ from the typical *S. pinnata* from India and represent an undescribed species, *S. malayana* KOSTERMANS.

When writing the paper he could only rely on his memory of former experience and on only three specimens from Malaya. I observed that in one of them the leaf difference mentioned in his key does not fit. His experience can only relate to the size of trees and bears no testimony on the flower details mentioned in the key and their geographical variability, which is in this genus difficult to judge because of the cultivation, domestication, and running wild of cultivated trees. For the present his delimitation does not seem convincing, especially as there are also discrepancies in his key and descriptions.

Araliaceae

- 9: 39a *Osмоxyloх linearе* (MERR.) PHILIPSON.
Substitute in description after 'the central branch 4-5 mm long': bearing an umbel of c. 12 sterile, globose, bacciform flowers, c. 8 mm \varnothing when dry.

Distr. Add: Negros Occidental (PANCHEO 1845).

Ecol. Low bushy shrub along riverbanks. Flowers orange; fruit dark purple or black. Cultivated (recently) as an ornamental for its dark green and shiny foliage.

Vern. *Miagos*

- 9: 67 *Arthrophyllum stonel* AH-LAN LIM, Mal. For. 43 (1980) 263, f. 1; STONE, Fed. Mus. J. n.s. 26 (1) (1981) 71, f. ii.

Distr. *Malesia*: Malaya: Pahang-Selangor (STONE 12358, 13754, 14140, KLU 27353, 30006, 30007).

Ecol. Montane forest, 1000-1800 m, sometimes dwarfed in elfin forest on summit ridges.

Notes. Said to be intermediate between *A. montanum* and *A. alternifolium*, distinct from the latter by the purple fruit, degree of branching of the inflorescence, and the narrow, thin-coriaceous leaflets.

A. montanum and *A. alternifolium* were already distinguished by PHILIPSON (Fl. Males. I, 9: 55) by weak characters and the addition of a third one, with intermediate leaf characters is therefore hardly welcome; the differentiating characters are also slight. Mr. LIM should have given a clear key for the three species instead of this haphazard description.

Prof. PHILIPSON (*in litt.*) finds '*A. stoneli*' represents rather larger than usual specimens of *A. alternifolium*.

- 9: 103 Replace: 16. ELEUTHEROCOCCUS
MAXIM. Mém. Ac. Sc. St. Pétersb. Sav. Etr.

9 (1859) 132; S. Y. HU, J. Arn. Arb. 6 (1980) 108. — *Panax* subg. *Acanthopanax* DECNE & PLANCH. Rev. Hort. IV, 3 (1854) 105. — *Acanthopanax* (DECNE & PLANCH.) H. WITTE, Ann. Hort. Bot. 4 (1861) 89; MIQ. Ann. Mus. Bot. Lugd.-Bat. 1 (1863) 10; PHILIPSON, Fl. Males. I, 9 (1979) 103.

Note. Unfortunately *Acanthopanax* has to give way. The two Malesian species should be called:

1. *Eleutherococcus trifoliatus* (L.) S. Y. HU, J. Arn. Arb. 61 (1980) 110. — *Acanthopanax trifoliatus* (L.) VOSS. Vilmor. Blumengärtn. 1 (1894) 406; MERR. Philip. J. Sc. 1 (1906) Suppl. 217; PHILIPSON, Fl. Males. I, 9 (1979) 103.

2. *Eleutherococcus malayanus* (M. R. HENDERSON) STONE, Mal. For. 43 (1980) 395. — *Acanthopanax malayanus* M. R. HENDERSON, Gard. Bull. S. S. 7 (1933) 105, pl. 22; PHILIPSON, Fl. Males. I, 9 (1979) 103.

Balanophoraceae

- 7: 797a *Balanophora elongata* Bl.
Add to literature: B. C. STONE, Mal. Nat. J. 33 (1979) 129, fig.; Fed. Mus. J. n. s. 26 (1) (1981) 72. — *B. papuana* (non SCHLTR) SOEPADMO, Nature Malaysiana 3 (1) (1978) 24, with col. illus. — *B. hansenii* HAMBALL, Reinwardtia 9 (1980) 425.
- 7: 798a Add to Distr.: Malaya: Selangor/Pahang border, G. Ulu Kali, in dwarf forest on ridge at 1500–1700 m, on *Pentaptylax auryoides*.
Add to Note: According to Dr. B. HANSEN (*in litt.*) the new record from Malaya belongs undoubtedly to *B. elongata* to which it keys out without difficulty in the key in Fl. Males. I, 7: 793.
- 7: 802b *Balanophora abbreviata* Bl.
Add to Distr.: New Hebrides: Mallicolo I. (N. HALLÉ RSNH 6351), parasitic on *Ficus*. Cf. HALLÉ, Adansonia 17 (1978) 260.
Add to Note: Mr. G. D. AREKAL & G. R. SHIVAMURTHY (Phytomorph. 26, 1976, 135–138, 6 fig.) have, for the first time, been able to examine, *in situ* — since all former experimental infections have failed — the germination of the seed of *B. abbreviata*, a magnificent achievement with these utterly minute seeds. After the breaking of the seed coat the endosperm cells produce 4–8 narrow tubular extensions coated with a sticky substance adhering to the fine rootlets for anchorage. Then the hardly differentiated embryo produces 1–4 tubular processes to form the primary haustorium, penetrating into the rootlet and making contact with the vascular tissue of the rootlet of the host; a nodule develops, throwing off the seed coat, and parasitism

is established. The procedure is established on uninjured rootlets. Naturally it does not exclude the possibility that infection can also proceed on injured roots or even stem bases of host plants.

Bignoniaceae

- 8: 137b *Deplanchea bancana* (SCHEFFER) STEEN.
Add to Distr.: Central Celebes (Baolu, near Palopo; Usu near Malili; near Matana lake).
Add to Notes: The Celebes specimens were poor and originally assigned to *D. glabra* (STEEN.) STEEN. With abundant recent adequate material from localities nearby, they appear to belong to *D. bancana*.
- 8: 138a Change in Fig. 11, map: the localities from Celebes of *Deplanchea glabra* belong to *D. bancana*.
- 8: 141a *Deplanchea glabra* (STEEN.) STEEN.
Delete Celebes from the distribution.
- 8: 148b 3. *Stereospermum colais* (HAM. ex DILLW.) MABBERLEY, Taxon 27 (1978; publ. 1979) 553. — *Bignonia colais* HAM. ex DILLW. Review of the references to the Hortus Malabaricus etc. (1839) 28, based on padri RHEEDE, Hort. Malab. 6, t. 26. — *S. personatum* (HASSK.) CHATTERJEE; STEEN. Fl. Males. I, 8 (1977) 148.
Nomencl.: On the strength of HAMILTON's opinion that this was different from *Bignonia chelonoides* L. f., DILLWYN proposed a new name, which antedates that of HASSKARL.
- 8: 159a, *Fernandoa macroloba* (MIQ.) STEEN.
153b The mention of this N. Sumatran endemic tree (as '*Heterophragma macrolobium*' = *Haplophragma macrolobum* (MIQ.) STEEN.) by FLENLEY & RICHARDS (eds.), The Krakatao Centenary Expedition, in Dept. Geogr., Univ. Hull, Misc. ser. 25 (1982) 16, 27, 48, 166 is derived from a misidentification; the specimens belong to the common *Radermachera glandulosa* (BL.) MIQ.
- 8: 160, These two pages have unfortunately become transposed.
161
- 8: 177a *Pandorea pandorana* (ANDR.) STEEN.
Add to Distr.: Central Celebes (VAN BALGOOY 3915), and change Fig. 38, map, accordingly.

Burmanniaceae

- 4: 20, *Gymnosiphon* Bl.
593a Add to Distr.: Lesser Sunda Islands: Flores (SCHMUTZ 4802, prob. *G. aphyllus* Bl.). The genus is not yet reported from the Moluccas and the Philippines.
- 4: 21 *Thismia* GRIFFITH.
Add the synonym: *Geomitra* BECC. Malesia

1 (1877) 250.

Add Note. 15. *Thismia clavigera* seems to be better accommodated in *Thismia sect. Sarcosiphon* (BL.) JONKER, from the three species of which it is distinct by the free clavate inner tepals.

4: 22 Insert in the key after the second lead of 1:
1a. Inner perianth lobes connate at the tips, forming an erect mitre with large holes. Continue to 12.

1a. Inner perianth lobes connate at the tips, forming a mitre with large holes, the lobes continued above the mitre as 3 free, almost erect, filiform, clavate segments. 15. *T. clavigera*

4: 25 Insert after 14. *Thismia crocea*:
15. *Thismia clavigera* (BECC.) F.v.M. Vict. Nat. (1890) 235; Pap. & Proc. R. Soc. Tasm. for 1890 (1891) 235; STONE, *Blumea* 26 (1980) 420, pl. — *Geomitra clavigera* BECC. Malesia 1 (1877) 250, t. 10, f. 1; Jonker, Fl. Males. I, 4 (1948) 25. — Fig. 1.

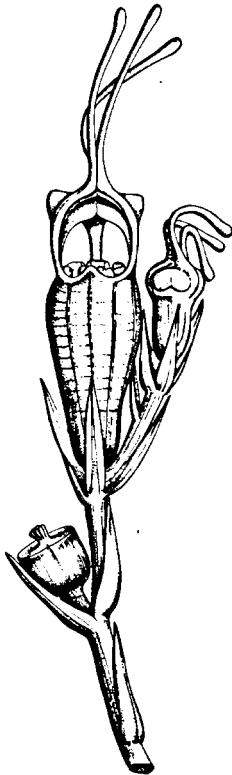


Fig. 1. *Thismia clavigera* (BECC.) F.v.M., ×2 (after BECCARD).

Distr. *Malesia*: Malay Peninsula (?Perak, G. Hiau above Taiping; Langkawi Is.), N. Sumatra (Gajo Lands), Borneo (Sarawak: Lundu Distr.).

4: 25 Delete 4. *Geomitra* etc.

Burseraceae (LEENHOUTS)

5: 222a *Dacryodes rugosa* (BL.) H. J. LAM. Add to Distr.: Nicobar Is., Katchal I. (*var. rugosa*).

5: 228b *Dacryodes longifolia* (KING) H. J. LAM. Add to literature: KOCHUMMEN in Whitmore, Tree Fl. Malaya 1 (1972) 141. Add to description: Tree up to 40 m with buttresses up to 3.5 m (*cf.* KOCHUMMEN, 1972).

Add to Distr.: Throughout the Malay Peninsula (KOCHUMMEN, 1972); *var. longifolia* also in Borneo.

Insert: Ec o1. Usually on coastal hills or hills which were coastal in the Pleistocene (KOCHUMMEN, 1972), up to 300 m. Fr. April.

5: 232a *Santiria grandiflora* KALKMAN. Add to description: Branchlets up to 1.75 cm thick. Leaflets finally glabrous beneath. Fruits nearly transversely obovate, 2 by 1.25 by 1.5 cm, stigma more than 90° ex-centric.

Add to Distr.: N. Borneo (Sipitang Distr., Mendalong, Lumaku For. Res.).

5: 251 Add in the key to the species of *Canarium*, after the second lead of 6:

6b. Stipules up to 1.5, rarely 2.5 cm long, not distinctly exceeding the terminal bud. Branchlets solid. Stamens 6.

7a. Branchlets 1.5–3 cm ø; pith thick and soft.

7A. Petiole terete with the stipules inserted at the base. Fruit glabrous

56. *C. batjanense*

7A. Petiole sharp-angular with the stipules inserted on the angles up to 5 cm from the base. Fruit prickly-hairy 43. *C. hirsutum*

5: 275a *Canarium grandifolium* (RIDL.) H. J. LAM. Add to Distr.: According to KOCHUMMEN (in Whitmore, Tree Fl. Malaya 1, 1972, 129) also in Borneo (Brunei).

5: 276b *Canarium decumanum* GAERTN. Add to description: Leaflets of the upper pairs sometimes on the basisopic side decurrent till the rachis. Fruits up to 12 cm long.

Add to Distr.: Admiralty Is. (Manus I.). Add to Ecol.: sago swamp.

5: 283b *Canarium fusco-calycinum* RIDL. Add to description: Tree up to 21 m high and 60 cm ø. Infructescences c. 15–30 cm long with few short oblique-erect branches and with few fruits; calyx funnel-shaped,

trigonus, c. 1 cm diam. Fruits (immature) narrowly oblong, tapering to both ends, trigonous in section, 3.5 by 1.25 cm, glabrous; in section the kernel with flat sides and slightly rounded angles, the lids with a very faint median rib, lids c. 1.5 mm thick. Seeds 2, the sterile cell moderately reduced.

Add to Ecol.: On clay, up to 340 m. *Fl. Aug.*

5: 290a *Canarium rigidum* (Bl.) Miq.
Add to Distr.: Moluccas (Obi I.).

5: 290b. *Canarium cestracion* LEENH.

291a Add to description: Twigs up to 11 mm ø. Stipules linear, tapering to an acute point, 4 by 1 mm. Leaves up to 8-jugate; leaflets from 2.5 cm broad on; acumen sometimes long and slender; nerves up to 17 pairs. Fruits up to 3 cm high and 1.75 cm broad.

Add to Distr.: Milne Bay Distr.

5: 296, Insert after 55. *Canarium pimela*:

6: 928 56. *Canarium batjanense* LEENH. Blumea

27 (1981) 211.

Distr. *Malesia*: Moluccas: Batjan I. (Mt

Sibela).

Ecol. Canopy or subcanopy tree in primary

forest, 250–1050 m. *Fl. fr.* Oct.

Note. The present species seems to be allied with *C. acutifolium* MERR., *C. balsamiferum* WILLD., and *C. oleosum* ENGL., which is also well in accordance with its geographical position (cf. LEENHOUTS, Blumea 9, 1959, 317, f. 9). It seems nearest to *C. balsamiferum*, which differs by the absence of stipules, the far stronger reduced pistil in the male flower, and the fruit cells that are all three well developed. The only moderately reduced pistillode is well in accordance with *C. oleosum*, different in both other points mentioned under *C. balsamiferum*, however, and moreover in the much smaller, nearly ovoid fruits. Vegetatively, *C. acutifolium* and *C. batjanense* are hardly separable but for the longer and more persistent stipules of the former; *C. acutifolium* differs, however, in the strongly reduced pistillode and in the smaller and more globular fruits.

7: 822a *Dacryodes multijuga* LEENH. Add:

Distr. South Sumatra (FORBES 3073, L), fruits only. Hitherto only known from one collection in Malaya.

Campanulaceae

6: 118 Insert after 4. *Wahlenbergia marginata*:
5. *Wahlenbergia papuana* v. ROYEN, Bot. J. Linn. Soc. 77 (1978) 121, f. 2.

Branched dwarf herb, prostrate. Twigs, leaves and calyx hairy. Leaves at end of twiglets, narrow-oblongate, 8–10 mm long. Filaments glabrous, not widened at base, thus different from both *W. confusa*

and *W. marginata*.

Distr. *Malesia*: Papua New Guinea: along bank leading from Iswan swamp to Koma Creek (Mt Victoria), c. 2650 m. *Fl. fr.* May.

Note. According to the author closely related to the glabrous New Zealand species *W. albomarginata* HOOK. f.

6: 122, P. VAN ROYEN has provided a new key to
928 the New Guinea species of *Lobelia*. Cf. Bot. J. Linn. Soc. 77 (1978) 120.

6: 136, Add to the species of *Lobelia*:
928 *Lobelia victoriensis* v. ROYEN, Bot. J. Linn. Soc. 77 (1978) 118, f. 1.

Stemless dwarf, 7–20 mm high, with a single central flower in a rosette of ovate leaves. Corolla isomerous, without a dorsal slit, lobes 5, equal, filiform, long.

Distr. *Malesia*: Papua New Guinea: Iswan swamp on Mt Victoria, 2660 m alt. *Fl. fr.* May.

Caprifoliaceae

4: 175 Add to the family description: Leaves very
rarely scattered or in pseudowhorls (*sub-*
fam. Alseuosmoideae).

4: 176 Insert in the key after the second lead of 1:
1a. Leaves scattered or in pseudowhorls

5. Perliomphale

1a. Leaves decussate. Continue to 2.
4: 191a *Sambucus javanica* Bl.
Add to literature: STEEN. Blumea 24 (1978)
479.

4: 192a Add to Distr.: West New Guinea: Arfak
Mts, Mt Lensemoi, 1850 m, BW 12657;
Wissel Lake region, EYMA 4618; Papua
New Guinea: Morobe Distr., Sattelberg,
Timbe R., 1500 m, CLEMENS 7793.
Add to Notes: These records fill the gap of
the generic range in East Malesia, two species
being recorded from Australia, which
are discussed in VAN STEENIS, l.c.

4: 194 Insert after 4. *Carlemannia*:

5. PERIOMPHALE

BAILL. Bull. Mens. Soc. Linn. Paris 1 (1888)
731; STEEN. Blumea 24 (1978) 480. — *Pachydiscus* GILG & SCHLTR, Bot. Jahrb. 39
(1906) 270. — *Memecyanthes* GILG &
SCHLTR, l.c. 269.

Shrublets. Leaves scattered or in pseudo-
whorls, entire or with a few faint teeth to-
wards the apex. Flowers actinomorphic,
5-merous, fascicled or solitary axillary.
Ovary inferior, 2-celled, with rather few
(1–4) ovules on the septum. Corolla gamo-
phyllous, somewhat barrel-shaped. Stamens
5, free.

Distr. New Caledonia (4 spp.), Papua
New Guinea (1 sp.).

Notes. This genus belongs to the sub-
family *Alseuosmoideae*, best known from

the small genus *Alseuosmia* A. CUNN. from New Zealand.

There is no unanimity of opinion about its taxonomic place. Sometimes it is treated as a separate family, but mostly it is assigned an isolated place in *Caprifoliaceae*, to which I agree. This is another New Caledonian genus now turned up in New Guinea. A third, yet undescribed monotypic genus of the subfamily occurs in Queensland (VAN STEENIS, *l.c.*).

1. Periomphale papuana STEEN. *Blumea* 24 (1978) 481.

Glabrous, epiphytic shrublet, c. 75 cm; stem and branches very slender. *Leaves* scattered and in pseudowhorls, lanceolate-oblong, 15–25 by 6–8 mm, cuneate at base, acute at apex, margin entire or mostly with 1 or 2 short gland-tipped teeth; nerves 2–3 pairs; very erect; venation impressed above. Petiole 3–4 mm. *Flowers* solitary; pedicels pink, 1–2 mm. *Calyx lobes* 5, thickish, blunt-deltoid, 1.25 by 0.5 mm. *Corolla* narrowly barrel-shaped, 6 mm long, pinkish light green; lobes 1 mm, carunculate inside apex. *Stamens* 5, free, alternipetalous. *Ovules* 4–5 in each cell, attached to the septum, flattish. Style columnar, as long as the corolla; stigma globular, rugose.

Distr. Malesia: Papua New Guinea: West Sepik Distr., Telefomin Subdistr., 3000 m alt., in *Podocarpus-Phyllocladus* woodland with *Gahnia* tussocks dominating the undergrowth (LAE 670687).

Celastraceae (DING HOU)

6: 233 *Celastrus hindsii* BTH. *Cf.* STONE, *Mal. For.* 43 (1980) 244.

This species was not treated in the paper, but its occurrence in Malaya is mentioned twice in the summary. The specimen in question (STONE 14039) was misidentified and belongs to the common *C. monospermoides* LOES.

6: 243 *Xylonymus* KALKMAN.
Change in description: Flowers 4–5-merous.

6: 245 *Xylonymus versteeghii* KALKMAN.
Add to *Distr.*: West New Guinea: Dalman, Nabire, KANEHIRA & HATUSIMA 12241; Darmi Distr., BW 9317. *Moluccas:* Obi I., DE VOGEL 4347.

6: 420 *Salacia kalahiensis* KORTH.
Hitherto known from the Philippines, Borneo and Java. Now also from the Lesser Sunda Is.: W. Flores (Paku, 400 m, SCHMUTZ 4523; vern.: *wase mantur*).

Chenopodiaceae

4: 104 *Arthrocnemum* MOQ.

After a long and careful study of Australian *Salicornieae* P. G. WILSON has concluded that the concept of the genus *Arthrocnemum* is polymorphous, and that the Malesian species attributed to it (*A. indicum*) should belong to a new genus, *Halosarcia*, differing from *Arthrocnemum* in sclereids and the adaxial stamen which he finds of fundamental importance; he suggested that the two genera are not closely related.

Within *Halosarcia indica* WILSON distinguishes four subspecies, two of which are endemic to Australia and two others occur also outside Australia, the type *ssp. indica* also in India and Tanzania, and a new subspecies in South Malesia.

As *ssp. indica* might also be found in Malesia, I extract WILSON's key.

Halosarcia indica (WILLD.) P. G. WILSON, *Nuytsia* 3 (1980) 63. — *Arthrocnemum indicum* (WILLD.) MOQ.: BACKER, *Fl. Males.* I, 4 (1949) 104.

KEY TO THE SUBSPECIES

1. Plant decumbent or prostrate. Articles of branches corky with age, ± truncate, entire *ssp. indica*
1. Plant ± erect. Cortical tissue of articles shrivelling with age, often lobed, ± ciliate *ssp. leiostachya*

ssp. leiostachya (BTH.) P. G. WILSON, *Nuytsia* 3 (1980) 66. — *Arthrocnemum ciliolatum* BUNGE *ex* UNG.-STERNB. *Versuch Syst. Salicornen* 69 (1866); UNG.-STERNB. *D. Atti Congr. Int. Bot. Firenze* 1874 (1876) 283, based on specimens from Java and Lesser Sunda Is.; A. J. SCOTT, *Bot. J. Linn. Soc.* 75 (1977) 370. — *Salicornia leiostachya* BTH. *Fl. Austr.* 5 (1870) 203. — *Arthrocnemum leiostachya* (BTH.) PAULSEN, *Dansk Bot. Ark.* 2 (8) (1918) 61.

Distr. Australia, *South Malesia:* north-coast of Java, incl. Madura and Kangean Is., Lesser Sunda Is. (Sumba, Sumbawa, Timor).

Connaraceae (LEENHOUTS)

- 5: 495 *Anatomy*. W. C. DICKISON (*J. Elisha Mitchell Sc. Soc.* 87, 1971, 77–86; *ibid.* 88, 1972, 120–136; *ibid.* 89, 1973, 121–138) concluded that *Connaraceae* are distinctly allied with *Leguminosae* and *Rosaceae*. His conclusions regarding relationships within the family deserve a more critical attitude, however, as at that time the author was in-

sufficiently aware of the difficulties of interpreting taxonomy, especially regarding synonymy; he was too much inclined to take identifications of herbarium specimens for granted.

Palynology. W. C. DICKISON, Pollen et Spores 21 (1979) 31–79. In this extensive survey of the pollen of the *Connaraceae*, the author avoided the mistakes made in his earlier anatomical papers. This makes his conclusions of greater importance. The taxonomic opinions brought forward in the Flora Malesiana revision of this family are to a high degree confirmed.

- 5: 504a *Agelaea trinervis* (LLANOS) MERR.
Add to Distr.: Hainan (cf. ANON., Fl. Hainan 3, 1974, 113).
- 5: 507b *Roureopsis asplenifolia* SCHELLENB.
Add to Distr.: Borneo.
- 5: 520a *Rourea prainiana* TALBOT.
Add to Distr.: Northern Thailand (cf. VIDAL, Fl. Thailand 2, 1972, 124).
- 5: 524b *Ellipanthus beccarii* PIERRE.
Add to Distr.: Sumatra (*var. beccarii*).
- 5: 526 Correct the key to the species of *Connarus* as follows:
second lead of 18: endocarp sparsely to densely non-glandular pubescent.
couplet 19: delete 'Sepals blunt' versus 'Sepals acute'.
- 5: 528 Insert after 2. *Connarus euphlebius*:
2a. *Connarus impressinervis* STONE, Mal. For. 43 (1980) 255, fig.
Differs from *C. euphlebius* MERR. as follows: Branches and leaves glabrous. Petioles 0.8 cm. Nerves 5–6(–8) pairs. Petals (under the fruit) outside appressed short-hairy. Beak of fruit faint, lateral, slightly below the apex; pericarp outside glabrous, inside with a few scattered hairs.

Distr. *Malesia*: Borneo (Sarawak; S 14731, S 18903, S 24232, S 24715, S 28417).

Note. Already in 1962 I studied the type material on which this new species is based and found that it is allied to *C. euphlebius*, but differed in several points and seemed to represent a new species. I pointed out the differences cited above (*in sched.*). Because floral characters are important in the genus, I refrained from describing it, all material hitherto known being in fruit.

- 5: 538b *Connarus monocarpus* L. *ssp. malayensis* LEENH.
Add to Distr.: SE. Thailand (cf. VIDAL, Fl. Thailand 2, 1972, 129).

Convolvulaceae

- 4: 485a Change 36. *Ipomoea illustris* etc. as follows:
36. *Ipomoea campanulata* LINNÉ, Sp. Pl. (1753) 160; Moon, Cat. Pl. Ceyl. (1824) 14;

TRIMEN Handb. Fl. Ceyl. 3 (1895) 221; AUSTIN, POWELL & NICOLSON, Brittonia 30 (1978) 196. — *Adamboe* RHEEDE, Hort. Mal. 11 (1692) 115, t. 56 (lectotype). — *I. illustris* (CLARKE) PRAIN, Beng. Pl. 2 (1903) 735; OOSTSTR. Fl. Males. I, 4 (1953) 485.

Note. Apparently *Adamboe* RHEEDE does not belong to *Stictocardia* — as VAN OOSTSTROOM hesitantly assumed — and becomes the type through the new typification. The name change is a nuisance, but has to be accepted.

- 4: 485b Change 37. *Ipomoea crassicaulis* etc. as follows:
37. *Ipomoea carnea* JACQ. *ssp. fistulosa* (MART. ex CHOISY, in DC.) D. AUSTIN, Taxon 26 (1977) 237. — *I. fistulosa* MART. ex CHOISY in DC. Prod. 9 (Jan. 1845) 349. — *Batatas crassicaulis* BTH. Voy. Sulph. 5 (June 1845) 134. — *I. crassicaulis* (BTH.) B. L. ROBINSON, Proc. Am. Ac. Sc. 51 (1916) 530; OOSTSTR. Fl. Males. I, 4 (1953) 485.

Note. AUSTIN has convincingly shown that the differences between *I. carnea* and *I. fistulosa* do not merit specific distinction. As the two forms, which are distinct by minor vegetative characters, grow in South America largely geographically isolated (allopatric), a subspecific rank (as a race) seems the best disposition.

- 4: 487a Change 40. *Ipomoea tuba* etc. as follows:
40. *Ipomoea macrantha* R. & S. Syst. Veg. 4 (1819) 451; POWELL, NICOLSON & AUSTIN, Brittonia 30 (1978) 201. — *I. tuba* (SCHLECHTEND.) G. DON, Gen. Syst. 4 (1838) 271; OOSTSTR. Fl. Males. I, 4 (1953) 487.

Note. An unfortunate but unavoidable name change of a pantropical species.

Crassulaceae (H. OHBA, Tokyo)

- 4: 197 Insert the key and replace the species description under the genus *Sedum* L. by the following new treatment:

KEY TO THE SPECIES

1. Sepals free.
 2. Flowers 4-merous, sepals narrowly oblong-spathulate. Styles very short (less than 0.3 mm). Flowering stems simple. Cauline leaves spatulate
 1. *S. erythrospermum* *ssp. australe*
 2. Flowers 5-merous, sepals spatulate (to oblong). Styles long (0.9–1.2 mm). Flowering stems tri- (rarely bi-)furcate. Cauline leaves spatulate to broadly obovate 2. *S. formosanum*
1. Sepals connate for c. 0.5 mm. Flowers 5-merous, sepals linear-lanceolate to very narrowly oblong. Style long (c. 1.2

mm). Flowering stems with a short sterile shoot or simple. Cauline leaves oblanceolate to narrowly obovate

3. *S. parvisepalum* ssp. *philippinense*

1. *Sedum erythrosperrum* HAYATA, Ic. Pl. Formos. 3 (1913) 110.

ssp. *australe* MERR. H. OHBA, J. Jap. Bot. 52 (1977) 322. — *S. australe* MERR. Gov. Lab. Publ. Philip. 29 (1905) 16, non ROSE (1903); Philip. J. Sc. 5 (1910) Bot. 350, p.p.; En. Philip. 2 (1923) 217, p.p. — *S. ambiflorum* R. T. CLAUSEN, Cact. Succ. J. 18 (1946) 58; BACKER, Fl. Males. I, 4 (1951) 197, *versim.*, p.p. — Fig. 2a–d.

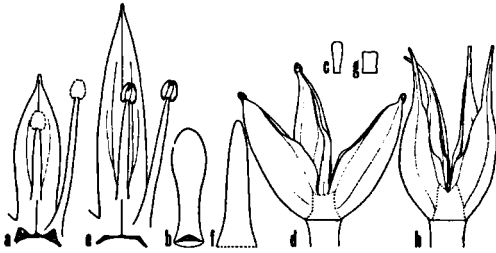


Fig. 2. *Sedum erythrosperrum* HAYATA, ssp. *australe* H. OHBA. a. Petal with stamen, b. sepal, c. nectar scale, d. ovaries. — *S. parvisepalum* YAMAMOTO ssp. *philippinense* H. OHBA. e. Petal with stamen, f. calyx lobe, g. nectar scale, h. ovaries. All $\times 5$ (a–d ELMER 6568, e–h MUNI 5644).

Succulent, glabrous, perennial herb. Roots thin. Flowering stems annual, 5–10 cm long, 1.5–2 mm ϕ , simple, erect from nearly decumbent base, smooth. *Leaves* alternate (rarely opposite or ternate), remotely arranged, sessile, shortly spurred (the spur with a round-truncate apex, c. 0.5 mm long), entire, spatulate, apex round or obtuse, base long attenuate, 7–18(–27) by 2–5(–11) mm, thick-herbaceous, flat, smooth, spreading or ascending. *Inflorescences* terminal, a ternate bracteate cyme. Bracts leafy, spatulate to obovate. *Flowers* mostly 4-merous, erect, sessile. *Sepals* free, narrowly oblong-spatulate, base spurred (the spur with round-truncate apex, 0.2 mm long), apex round to nearly truncate, somewhat broadening towards the base, entire, somewhat unequal in size, 2–4 by 0.8–1 mm, more or less fleshy, green, smooth, suberect throughout, persistent at fructescence. *Petals* bright yellow, connate c. 0.3 mm from the base, lanceolate, acuminate, c. 4 mm by 1.2 mm, widely spreading at anthesis. *Stamens* 8, shorter

than the petals, erect at anthesis; filaments filiform, 3–4 mm, oppositipetalous ones c. 1 mm from the base connate with the petal. Nectar-scales flat, narrowly oblong, 0.8 by 0.3 mm. *Gynoeceum* 3–4 mm long, the ovaries basally for c. 0.5 mm connate, ventrally gibbose, dorsally round, suberect, 1.5 mm wide at the middle, style very short, less than 0.3 mm. *Ovules* c. 20 in each locule.

Distr. *Malesia*: Philippines (Luzon, Benguet Prov.: Mt Santo Tomas, ELMER 6568 = PNH 114365). The ssp. *erythrosperrum* occurs in Formosa.

Ecol. On ledges and gravelly hillside near the summit of mountain, 2000–2200 m.

Note. *Ssp. erythrosperrum* differs from *ssp. australe* in having 5-merous flowers, narrowly oblong-oblanceolate or linear sepals, subulate or narrowly lanceolate petals, and usually trifurcate flowering stems.

2. *Sedum formosanum* N. E. BROWN, Gard. Chron. n.s. 24 (1885) 134; FORBES & HEMSLEY, J. Linn. Soc. 26 (1888) 285; HAYATA, Ic. Pl. Formos. 2 (1912) 12; PRAEGER, Not. R. Bot. Gard. Edinb. 13 (1921) 83; J. R. Hort. Soc. 46 (1921) 295; R.-HAMMET, Candollea 4 (1929) 32; BERGER in E. & P. Nat. Pfl. Fam. ed. 2, 18a (1930) 460; FRÖD. Act. Hort. Gothob. 6 (1931) app. 97, f. 778–784, t. 62; OHWA, Fl. Jap. Engl. ed. (1965) 497; HATUS. Mem. Fac. Agr. Kagoshima Univ. 5 (1966) 31; Fl. Ryukyus (1971) 301; MORAN in Walker, Fl. Okinawa (1976) 508; H. OHBA, J. Jap. Bot. 52 (1977) 322. — *S. mariae* R.-HAMMET in Fedde, Rep. 8 (1910) 143.

Succulent, glabrous, perennial herb, up to 25 cm high. Flowering stems erect from a creeping or procumbent base, once or twice tri- (rarely bi-)furcate, terete, smooth. *Leaves* alternate, remotely arranged, sessile, very shortly spurred (the spur less than 1 mm), entire, spatulate to broadly obovate, apex round, base long-attenuate, 1.5–3.5 by 0.6–1.6 cm, fleshy, bright green above, paler below, smooth. *Inflorescences* terminal, a ternate, bracteate, loosely many-flowered cyme. Bracts leafy. *Flowers* 5-merous, sessile, 6–9 mm at anthesis. *Sepals* free, very shortly spurred (c. 0.3 mm), entire, spatulate or rarely oblong, apex round, somewhat broadening towards the base, nearly equal in size, 2.8–3.7 by 0.8–1.3 mm, fleshy, ascending at anthesis. *Petals* bright yellow, basally connate for c. 0.5 mm, lanceolate to oblong-lanceolate, acute, 5.2–6.2 by 1.3–1.6 mm, nearly erect or ascending at anthesis. *Stamens* 10, shorter than the petal, nearly erect at anthesis; filaments filiform, c. 4.5 mm, the oppositi-

petaloid ones for *c.* 0.8 mm connate with the petal, anthers oblong, *c.* 0.4 mm long, deep yellow before dehiscence. Nectar-scales broadly oblong-obovate to broadly oblong, *c.* 0.5 by *c.* 0.4 mm, creamy white, flattish. *Gynoecium* 5.6–6.2 mm long, the ovaries for *c.* 1.5 mm connate, ventrally gibbose just above the ventral connection, dorsally round, erect throughout, *c.* 1.6 mm wide at the middle part, abruptly narrowing near the apex; style 0.9–1.2 mm, slender, tapering towards the apex; stigma lowly papillate, yellowish. *Ovules* 20–24 in each locule. Follicles 6–7 mm long, whitish, obovate, carpels not spreading. *Seeds* oblong, *c.* 0.7 mm long, testa brown, very minutely punctulate throughout.

Distr. Formosa and Japan (Ryukyu and Kyushu), in *Malesia*: N. Philippines (Batan I.: HATUSIMA & SATO 28624).

Ecol. On rocks at the shore, rarely inland. *Fl.* June–August.

3. *Sedum parvisepalum* YAMAMOTO, Suppl. Ic. Pl. Formos. 2 (1926) 22, f. 14.

ssp. philippinense H. OHBA, J. Jap. Bot. 52 (1977) 323. — *S. australe* (non MERR.) STEEN. Bull. Jard. Bot. Botz III, 13 (1934) 195. — *S. ambiflorum* (non R. T. CLAUSEN) BACKER, Fl. Males. I, 4 (1951) 197, *p.p.* — Fig. 2e–h.

Succulent, glabrous, perennial herb, up to 15 cm high. Flowering stems ascending or erect from creeping, sometimes branched base, with a short sterile shoot or simple, terete, smooth. *Leaves* alternate, remotely arranged, sessile, very shortly spurred (*c.* 0.5 mm), entire, narrowly obovate to oblanceolate, apex obtuse, base attenuate, 0.9–1.7 by 4–6 mm, thick-herbaceous, smooth. *Inflorescences* a terminal, ternate cyme, densely 30–50-flowered, sparsely bracteate. Bracts leafy. *Flowers* 5-merous, sessile, *c.* 10 mm wide at anthesis. *Sepals* basally for *c.* 0.5 mm connate, linear-lanceolate to very narrowly oblong, entire, slightly unequal in size, 2.5–3.5 by 0.5–0.7 mm, apex round, slightly broadening towards the base, base spurless, fleshy, ascending or spreading through anthesis. *Petals* bright yellow, basally for *c.* 0.5 mm connate, lanceolate, apex acute to acuminate-acute, 5–6.5 by 0.8–1 mm, spreading at anthesis. *Stamens* shorter than the petals, filaments 3.5–3.7 mm, the opposit-petalous ones for *c.* 1 mm connate with the petals, anthers ovate, *c.* 0.6 mm long, reddish before dehiscence. Nectar-scales broadly oblong to square, *c.* 0.5 by 0.3 mm. *Gynoecium* 4–5 mm long, the ovaries for 0.7 mm connate, ventrally gibbose, dorsally round, *c.* 1 mm wide, tapering towards the

apex from the middle, style *c.* 1.2 mm, slender, stigma not papillate. *Ovules* (20–) 24 (–34) in each locule. Follicles brownish, 4–5 by *c.* 2.5 mm, carpels widely spreading. *Seeds* brownish red, oblong-cylindrical, 0.7 mm long, apex round, testa very minutely punctulate.

Distr. *Malesia*: Philippines (Luzon, Benguet Prov.: BS 4279, 4451, 5373, 5644, MERRILL 4861, VAN STEENIS 17950, WILLIAMS 117). The *ssp. parvisepalum* occurs in Formosa.

Ecol. On rocks or boulders along steep slopes, *c.* 300–1700 m.

Note. *Ssp. philippinense* is distinguished from the Formosan *ssp. parvisepalum* by the narrowly obovate to oblanceolate leaves, shorter flowering stems, and longer petals. *Ssp. parvisepalum* has linear-oblanceolate leaves, flowering stems up to 25 cm long, and petals attaining 7.5 mm long. *Ssp. philippinense* differs from the Philippine *S. erythrospermum ssp. australe* by the 5-merous flowers, the ovaries with long style, the broadly connate, linear-lanceolate sepals, and the narrowly obovate to oblanceolate cauline leaves.

Cyperaceae

- 7: 468 Add to Fig. 10, map of *Mapania*: Lesser Sunda Islands: Flores $\frac{2}{0}$
- 7: 471a *Mapania macrocephala* (GAUDICH.) K. SCH.
Add to Distr.: Lesser Sunda Is. (W. Flores: Paku, Wae Meleng, 700 m, damp streambed in rain-forest, SCHMUTZ 4913).
Add to Notes: The species was known from the S. Philippines and N.–Central Moluccas eastwards; Flores is an important extension westwards. The nuts are on the small side, some 4–4.5 by 3 mm and pearl grey.
- 7: 474a *Mapania cuspidata* (MIQ.) UITTEN.
Add to Distr.: Lesser Sunda Is. (W. Flores: Paku, 500 m, plant 1 m, locally gregarious, in rain-forest, SCHMUTZ 4816).
Add to Notes: The widest distributed species of the genus, of which KERN (Fl. Males. I, 7, 1974, 466) expressly stated that it lacked in the Lesser Sunda Islands, the gap now being filled.
- 7: 522a *Lipocarpa chinensis* (OSB.) KERN.
Add to Distr.: Lesser Sunda Is. (Flores: VELDKAMP 7102).
- 7: 567a *Fimbristylis eragrostis* (NEES) HANCE.
Add to literature: VELDKAMP, Reinwardtia 10 (1982) 26.
Add to Distr.: Australia: Northern Territory (Arnhem Land: P. K. LATZ 2836).
- 5: 567b *Fimbristylis fusca* (NEES) CLARKE.
Add to literature: VELDKAMP, Reinwardtia 10 (1982) 26.

- Add to Distr.: Australia, Northern Territory (Katherine Gorge: DUNLOP 3733). A new record for Australia.
- 7: 605b *Cyperus esculentus* LINNÉ.
Add to literature: EVERAARTS, Weeds Vegetables Java (1981) 79. KERN knew this widely distributed species only from a single 'suspected' collection. This suspicion is now removed by Mr. A. P. EVERAARTS in his study on weeds of Java. He collected this species in fields (with vegetables) near Lembang and Pengalengan in West Java and on Mt Tengger (Tosari, Ngadisari) in East Java at 1300–1400 m.
- 7: 640a *Cyperus compactus* RETZ.
Add to literature: K. L. WILSON, *Telopea* 1 (1980) 462.
Add to Distr.: Australia: Northern Territory.
- 7: 686a *Oreobolus kükenhali* STEEN.
Add to literature: STEEN. *Reinwardtia* 10 (1982) 26.
- 7: 687a Add to Distr.: NW. Borneo: Sarawak (4th Div., N. side of Mt Murud), and dot this locality in Fig. 85.
Add to Ecol.: Forming dense tufts in wet rock holes, 2100 m, BURTT & MARTIN 5482.
Add Note: Hitherto only known from N. Sumatra and Malaya; Mt Kinabalu is the westernmost locality of another species, *O. ambiguus* KÜK & STEEN.
- 9: 149a *Carex breviscapa* CLARKE.
Add to Distr.: Central Celebes (Mt Lokilaki: W. MEIJER 9876).
Add to Ecol.: 1700–2200 m alt.
- 9: 164a *Curex oedorrhampha* NELMES.
Add to Distr.: Central Celebes (Mt Lokilaki: W. MEIJER 9869).
- Dipterocarpaceae (ASHTON)**
- 9: 239 Line 16 from top: *Cotylelobium* has 5 spp., not 6.
- 9: 242 Paragraph 5: replace 2nd and 3rd sentence by: It is not impossible that they were derived from the Indian subcontinent, as according to geophysical theory this rafted block of land had by the Eocene joined the Asian plate, while, moreover, *Dipterocarpus* could have migrated through S.W. Asia before it became arid in the Miocene.
- 9: 244 Paragraph 2, lines 10–12: *spp. philippinensis* also in S.E. Borneo; the doubtful sterile specimens belong to *spp. philippinensis*.
- 9: 246 Line 16 from top: change SASAH into SASAKI.
- 9: 246 Change the last two lines from bottom into: and its intensity would tend to inhibit vector numbers from reaching adequate levels for effective pollination. CHAN (1980) found most species to have high self-incompatibility, but apomictic adventive embryony occurs in several species (see p. 263, 270).
- 9: 257 Line 13 from top: change SASAH into SASAKI.
Paragraph 'Morphology', line 2, first word: change cylindrical into circular.
- 9: 267 Paragraph 3, line 4, add after 'species level.': *Dipterocarpoideae* differ from other subfamilies in the presence of resin canals and in their multiseriate rays.
- 9: 269 Paragraph 2, last line, add between the brackets: SOMEGO, 1978.
- 9: 272 Line 16 from top: change 'hypochroa' into *hypochra*.
Line 15 from bottom: change DC. into KURZ.
Line 4 from bottom: change DYER into KING.
- 9: 273 Line 4 from top: change MIQ. into BL.
Line 7 from bottom: omit '*Balanocarpus*'.
- 9: 276 Line 5 from bottom: change 'flora' into floral.
- 9: 279 Paragraph 2, lines 8 & 9, change sentence into: The mature fruit of *Pakaraimaea* is small, capsular, but the method of germination is unknown.
- 9: 284 Substitute paragraph 5 by: A picture thus emerges of the Asiatic subfamily originating in Central Gondwanaland and migrating eastwards. It appears likely that the family originated in the seasonal tropics; subsequent immigration and rapid diversification in the oceanic climates of S.W. Ceylon, West Malesia and New Guinea being accompanied by a reduction in stamen number and pollen production, and tomentum; and the evolution of a thin-walled and poorly dispersed fruit.
- 9: 290 Line 6 from bottom: change 'sort' into short.
- 9: 293 Line 5 from top: replace '*D. apterus*' by *D. validus*.
Paragraph 5, line 3: change 'but' into by.
- 9: 304a *Dipterocarpus baudii* KORTH.
Line 11 from top: change '*D. elongatus* KORTH.' by *D. validus* BL.
- 9: 310a *Dipterocarpus kunstleri* KING.
Line 16 from top: change '*D. elongatus* KORTH.' by *D. validus* BL.
- 9: 339a In caption Fig. 35 replace 'place' by tree, and add: The collector MUJAH indicates scale.
- 9: 341 *Cotylelobium* PIERRE.
Paragraph 2, after 'Distr.', change 6 into 5.
- 9: 342b *Cotylelobium melanoxyton* (HOOK. f.) PIERRE.
Delete the Note.
- 9: 344 In caption Fig. 41: *b* belongs to *Vatica umbonata* (HOOK. f.) BURCK *spp. acrocarpa* (SLOOT.) ASHTON, *d–e* to *spp. umbonata*.
- 9: 355a *Vatica sarawakensis* HEIM.
Line 11 from top: change '*V. oblongifolia*'

- into *V. sarawakensis*.
- 9: 365a *Vatica mangachapoi* BLCO *ssp. mangachapoi*.
Under 'Ecol.' line 3: change 'confirmed' into confined.
- 9: 404b *Hopea latifolia* SYM.
In 'Vern.' change 'jongkang' into jangkang.
- 9: 405b *Hopea pierrei* HANCE.
Add to Distr.: Sumatra (N.W. coast).
- 9: 424a *Hopea plagata* (BLCO) VIDAL.
Delete the Note.
- 9: 429 In Note under *Subsection Pierrea*, line 1, change 'The New Guinea species' into Some New Guinea species.
- 9: 436b *Hopea siranda* MIQ. under 'Excluded', change '489' into 491.
- 9: 437 *Shorea* ROXB. *ex* GAERTN. *f.*
Under 'Uses', line 4, change 'timber veneer' into veneer timber.
- 9: 448b *Shorea guiso* (BLCO) BL., in synonymy:
Lines 1 & 2 from top: change '263' into 45.
- 9: 459b *Shorea superba* SYM.
Under 'Distr.', line 2, read: Sabah, Tidung, Berau; Sampit, sterile coll.).
- 9: 460b *Shorea astylosa* FOXW.
Delete the third paragraph of the Notes.
- 9: 472 Line 2 from top in text: change 'sepalled' into sepals.
- 9: 483b *Shorea kudatensis* WOOD *ex* MEIJER.
In Distr. change 'Kilias' into Klias.
- 9: 487a *Shorea dealbata* FOXW.
Under 'Vern.' change 'bunbong' into bum-bong.
- 9: 491b *Shorea assamica* DYER *ssp. globifera* (RIDL.) SYM.
Under 'Distr.' delete line 4 and read: Bencoolen.
- 9: 499b *Shorea albida* SYM.
Under 'Ecol.' line 10: change '6.5' into 65.
Ditto line 21: add after 'community': 3.
- 9: 503 Under *Subsection Smithiana*, line 3, delete 'inflaked'.
- 9: 504b *Shorea smithiana* SYM.
In 'Vern.' line 3, change 'belong' into belang.
- 9: 515b *Shorea platyclados* SLOOT. *ex* FOXW.
Delete at the end of the Note: 'not by lateral plagiotropic shoots'.
- 9: 518a In caption Fig. 102, line 2, read: (Sar)awak, Semengoh Arboretum, with collector SALEH standing beside it (Photogr. SMYTHIES).
- 9: 524a *Shorea macrophylla* (DE VRIESE) ASHTON.
In 'Uses', line 1, read for Illippe: Illipe.
- 9: 529 In Note under *Subsection Auriculatae*, end of line 1, read: three others.
- 9: 541b *Shorea platycarpa* HEIM.
Note, line 2, read: lowland, dry land forests.
- 9: 542b *Shorea curtisii* DYER *ex* KING *ssp. curtisii*.
Note, first sentence, after 'Selangor;', read: subspecies *grandis* may have the same origin.
- 9: 543b In caption Fig. 113, line 2, add after 'Brunnei': The collector is LADI ANAK BIKAS.
- 9: 547a *Shorea parvifolia* DYER *ssp. parvifolia*.
In 'Vern.' line 2, change 'bung' into bunga.

Droseraceae

- 4: 377, B. J. CONN (Brunonia 3, 1980, 209–216, 2
5: 557, fig.) gave a review of *Drosera* L. in New
6: 943 Guinea, where all Malesian species occur.
He gave a new key, cited new records, and
added a 7th species, which was hitherto only
known from lowland savannahs in
Northern Australia.
- Drosera banksii* R.BR. *ex* DC. Prod. 1
(1824) 319; B. J. CONN, Brunonia 3 (1980)
209, f. 2A.

Similar to *D. peltata* J. E. SMITH, but differing by absence of bracts under the flowers and presence of stipules.

Distr. Northern Australia; in *Malesia*: Papua New Guinea (W. Div.: near Morehead, JOHNS 2201; Wassi Kussa R., HGF 38747).

Ecol. Under seasonal climatic conditions in open *Banksia dentata* savannahs, with *Melaleuca*, *Acacia*, and *Eucalyptus*, at c. 20 m altitude.

Ericaceae

- 6: 668 Add the *Rhododendron* species 298–301;
see below.
- 6: 483, 298. *Rhododendron capellae* P. KORES,
493 Blumea 24 (1978) 181, f. 1.
Distr. *Malesia*: Papua New Guinea, W.
Sepik, Mt Capella (Star Mts), 3800 m (LAE
68056).
- Note. Keys out to aff. *R. vinkii* SLEUM.,
but its affinity is obviously with *R. pulleanum*
KOORD.
- 6: 490b *Rhododendron scortechinii* K. & G.
Add to Distr.: Borneo: Sarawak (Mt Mulu,
en route from 4th camp to summit, on western
ridge), 2000–2400 m (HOTTA 14907).
- 6: 550 299. *Rhododendron roseiflorum* P. F. STE-
VENS, Adansonia II, 18 (1978) 55, 1 fig.
Distr. *Malesia*: West New Guinea: Mt
Carstensz, near mining on S. slope,
2100–2700 m (RAYNAL 17580, 17672).
- Note. Keys out near *R. rutenii* J.J.S.
- 6: 580, 300. *Rhododendron burtii* P. J. B.
582 WOODS, Not. R. Bot. Gard. Edinb. 37
(1978) 157, f. 1 a–d.
Distr. *Malesia*: Borneo: Sarawak (Mt
Murud), 1500 m.
Note. Belongs to *ser. Buxifolia*; cultivated
at Edinburgh. No affinity given but
keys out to *R. frey-wysslingii* J.J.S. from
N. Sumatra.
- 6: 568 301. *Rhododendron rubineiflorum* CRA-

- VEN, Not. R. Bot. Gard. Edinb. 38 (1980) 141, f. 1.
 Distr. *Malesia*: Papua New Guinea.
 Ecol. Alpine shrubberies, 2650–3400 m.
 Note. Closely allied to *R. anagalliflorum* WERNH.
- 6: 646b *Rhododendron nervulosum* SLEUM. var. *exuberans* SLEUM.
 Add to literature: P. J. B. WOODS, Not. R. Bot. Gard. Edinb. 37 (1978) 159, f. 1 e–i.
 Note. Additional remarks; attention is drawn towards similarity with *R. stenophyllum* HOOK. f.
- 6: 657a Correction as follows:
 277. *Rhododendron irroratum* FRANCH. ssp. *kontumense* (SLEUM.) CHAMBERLAIN, Not. R. Bot. Gard. Edinb. 37 (1978) 117. — *R. atjehense* SLEUM. Fl. Males. I, 6 (1966) 657, f. 47 & 48.
 Note. *R. irroratum* is a Chinese and Indo-chinese species.
- 6: 878, Add the following species:
 777 242. *Vaccinium altiterrae* VELDK. Blumea 25 (1979) 479.
 Distr. *Malesia*: Papua New Guinea (Western Highlands: Mts Burgers and Kegum).
 Ecol. Edges of *Drimys/Rapanea* coppices, 3400–3675 m.
 Note. Allied to *V. oranjense* J.J.S.
- 6: 892b, New reduction proposed:
 895b *Dimorphanthera amblyornidis* (BECC.) F.V.M. var. *steinii* STEVENS, J. Arn. Arb. 58 (1977) 439. — *D. steinii* SLEUM. Fl. Males. I, 6 (1967) 895.
- 6: 895, Reduction proposed to variety:
 892b *Dimorphanthera apoana* (MERR.) SCHLTR. var. *mindanaensis* (MERR.) STEVENS, J. Arn. Arb. 58 (1977) 440. — *D. mindanaensis* MERR.; SLEUM. Fl. Males. I, 6 (1967) 892.
- 6: 914 Add the following three *Dimorphanthera* species:
 71. *Dimorphanthera napuensis* P. F. STEVENS, J. Arn. Arb. 58 (1977) 441.
 Distr. *Malesia*: West New Guinea (Baliem; Bele R.; Lake Habbema).
 Ecol. Sprawling or scandent shrub in valley forest, 2000–2350 m.
 Note. Specimens were confused with *D. wrightiana* (KOORD.) J.J.S. Not assigned to a section.
 72. *Dimorphanthera wisselensis* P. F. STEVENS, J. Arn. Arb. 58 (1977) 442.
 Distr. *Malesia*: West New Guinea (Wissel Lakes); one collection, formerly confused with *D. wrightiana* (KOORD.) J.J.S.
 73. *Dimorphanthera albida* P.F. STEVENS, J. Arn. Arb. 58 (1977) 437.
 Distr. *Malesia*: Papua New Guinea, Morobe Distr., Edie Creek, 2700 m, VAN DER KLOET 35875, in fern heath; fl. Aug.
 Note. Belongs to sect. *Pachyanthae*, probably closest to *D. ingens* (SLEUM.) STEVENS.
- Fagaceae**
- 7: 277 *Nothofagus* BL.
 Unfortunately the typification of the genus *Nothofagus* by *N. betuloides* (MIRB.) OERST. (Taxon 7, 1958, 145) has been overlooked, and consequently some names of infrageneric taxa need correction.
- 7: 278 Changes in the key at the bottom of the page:
 Line 1, replace '1. Sect. *Nothofagus*' by: 1. Sect. *Calucechinus* (HOMBR. & JACQ.) KRASSER, and omit this name from line 2.
 Line 6, replace '1a. Subsect. *Antarcticae* STEEN.' by: 1a. Subsect. *Calucechinus*, and add the former name to its synonymy.
 Line 9, replace '2. Sect. *Calusparassus* (HOMBR. & JACQ.) KRASSER' by: 2. Sect. *Nothofagus*, and add the former name to its synonymy.
 Line 13, replace '2a. Subsect. *Quadripartitae* STEEN.' by: 2a. Subsect. *Nothofagus*, and add the former name to its synonymy.
- 7: 280 Replace '1. Section *Calusparassus* (HOMBR. & JACQ.) KRASSER' by: 1. Section *Nothofagus*, and add the former name to its synonymy.
- 7: 398 *Trigonobalanus* FORMAN.
 Through the paper by D. H. MAI on the Tertiary fossils of the genus in the Eocene in Europe (Jahrb. Geol. 3, 1970, 381–409) it has become clear that the two living species of the genus in West Malesia and Thailand are relicts of a former much larger range. *T. doichangensis*, hitherto only known from Thailand, has now also been recorded from Yunnan (HSU, WANG, WU & LI, Acta Bot. Yunnan. 3, 1981, 213).
 This conclusion is now unexpectedly confirmed by the find of a third living species in the mountains of the National Park of Colombia (NW. South America). G. LOZANO-C, J. I. HERNANDES-C & J. E. HENAO-S published this as *T. excelsa* nov. sp. (Caldesia 12 (n. 60), 1979, recvd June 1980, 517–537, 3 pl.). It grows in mountain forest at 1550–1800 m, as a large tree, 20–40 m high. Its leaves are scattered, as in the Thailand-Yunnan species. It is clear that the genus once had an ancient, large Laurasian range. It should also occur in the fossil state in the southern U.S.A.
- Flacourtiaceae**
- 5: 46b *Ryparosa javanica* (BL.) KURZ.
 Add to Distr.: Lesser Sunda Is. (Flores: Paku, 500 m, SCHMUTZ 4818).
- 5: 51 *Homalium* JACQ.

CRAVEN (Brunonia 2, 1979, 107–124, 9 fig.) has given a new treatment of the Papuan species by proposing 8 new species, by which the number of 2 distinguished by SLEUMER (Fl. Males. I, 5, 1954, 51) has increased to 10, apart from the 11th, *H. tatambense* SLEUM. from the Solomons which is included here. This is surprising to me, the more so as 7 of them are based on a

single specimen. From the key given it appears that single vegetative differences are frequently used for their delimitation and almost all are compared with the widely distributed, very variable *H. foetidum*. Future collections will show whether they will stand the test of time. CRAVEN's key and diagnoses are extracted here:

KEY TO THE PAPUASIAN SPECIES

1. Stamens always solitary before each petal.
2. Flowers sessile or subsessile, in simple spikes or racemes.
3. Leaf-apex long-attenuate, acute; leaf margin entire or obscurely distantly crenate. Papua New Guinea (Morobe Distr.; 1 old coll., not seen) 1. *H. acutissimum* GILG
3. Leaf-apex shortly acuminate, obtuse; leaf margin distinctly crenate. — Differs from *H. foetidum* by sessile flowers and solitary stamens. Papua New Guinea (Western Distr.; 1 coll.) 7. *H. reductum* CRAVEN
2. Flowers distinctly pedicellate, in racemes or panicles.
4. Petiole c. 10 mm long. Leaf margin strongly crenate. — Differs from *H. acutissimum* by distinctly crenate leaves and pedicelled flowers in panicles. Papua New Guinea (Madang Distr. and Bagabag I.; 2 coll.); New Ireland (1 coll.) 2. *H. bismarckense* CRAVEN
4. Petiole c. 5–6 mm long. Leaf margin weakly crenate. — Differs from *H. acutissimum* by elliptic acuminate leaves and distinctly pedicelled flowers. West New Guinea (Vogelkop; 1 coll.)
H. caput-avis CRAVEN
1. Stamens in fascicles of (1) 2 or more before each petal.
5. Stamens constantly in pairs, one behind the other. Papua New Guinea and Bismarcks, many collections
5. H. foetidum (ROXB.) BTH.
5. Stamens generally in fascicles of 3 or more.
6. Leaves broadly ovate to subcordate. Stamens in fascicles of 5–8. — Differs from *H. foetidum* by broad subcordate leaves and stamens in fascicles of 5 or more flowers. Solomons (Guadalcanal; 1 coll.)
9. H. subcordatum CRAVEN
6. Leaves elliptic to lanceolate. Stamens in fascicles of not more than 5.
7. Perianth segments sparsely hairy, at least the sepals glandular on the margins. — Differs from *H. foetidum* by glandular perianth. Papua New Guinea (Milne Bay Distr.; 1 coll.) . . . 8. *H. streimannii* CRAVEN
7. Perianth segments densely hairy and non-glandular.
8. Leaf margin weakly crenate to entire. — Possibly allied to *H. subcordatum* but different in elliptic narrower leaves and stamens usually in fascicles of 3–4. Solomons (Santa Isabel I.; 1 coll.)
10. H. tatambense SLEUM.
8. Leaf margin distinctly crenate.
9. Leaves velutinous. — Differs from *H. foetidum* by the velutinous leaves and stamens mostly in fascicles of 3–4. Papua New Guinea (Central Distr.; 1 coll.) 11. *H. velutinum* CRAVEN
9. Leaves glabrous.
10. Leaf margin entire in the basal 1/3–1/2. Branchlets glabrescent. — Differs from *H. foetidum* by: petals and sepals similar, stamens mostly in fascicles of 3. Normanby I. (1 coll.)
4. H. dentrecasteauxense CRAVEN
10. Leaf margin wholly crenate. Branchlets glabrous. — Differs from *H. foetidum* by larger flowers and stamens in fascicles of 3–5. Papua New Guinea (Milne Bay Distr.; 1 coll.)
6. H. maneauense CRAVEN

Flagellariaceae

- 4: 249b *Hanguana malayana* (JACK) MERR.
 Add to Distr.: N. Australia: Northern Territory, cf. AIRY SHAW, Kew Bull. 33 (1978) 4.

Note. The specimens belong to var. *anthelminthica* (BL.) BAKH. f.

- 4: 249 *Hanguana major* SHAW, Kew Bull. 35 (1981) 819, 1 fig.

This proposed new species, confined to the Kinabalu area, differs from the com-

moner form with small, globular fruits closer set, by spaced, larger, ovate-acute fruit up to 1.5–2 by 1.25 cm. SHAW added that the small-fruited form does not occur in this area.

The species *H. malayana*, as conceived by BACKER (Fl. Males. I, 4, 1951, 249) is admittedly variable, BACKER mentioning the fruit also to attain 2 cm. Extensive field observation would be needed to check the racial and population variability in detail over the entire range.

Geraniaceae

4: 445 *Geranium* LINNÉ.

The number of Malesian species, according to CAROLIN (Fl. Males. 1, 6, 1964, 445) 3 and one variety, has unexpectedly been increased by VELDKAMP & MOERMAN (Blumea 24, 1978, 463-477) to 15, including 9 new species from New Guinea and 1 from SW. Celebes. In their introduction the authors state that the evaluation of taxonomic status of these taxa has posed a bit of a problem, which they have not been able to solve

to their satisfaction, but further consideration has induced them 'to regard the taxa as species'. These considerations are, amongst others, that there may be chromosome taxa, that most taxa are represented by more than one collection, and that they appear to be homogeneous, although in several cases occurring on more than one mountain. In the key the exact description of the leaves plays an important role. Future research, especially karyologic, must show whether the specific status of the new species can be maintained.

KEY TO THE SPECIES

1. Leaves (sub)compound, middle 'leaflet' free for at least 0.9th of its length.
 2. 'Leaflets' repeatedly 2-3-partite with \pm linear-lanceolate, overlapping segments; the middle 0.2-0.3 mm wide at base. Papua New Guinea (Mt Suckling; 4 coll.) 9. *G. leptodactylon* VELDK.
 2. 'Leaflets' 3-lobed to -fid, segments broader, not overlapping, the middle 0.3-1 mm wide at base. Papua New Guinea (Star, Saruwaket, Owen Stanley Mts; 12 coll.) 13. *G. subcompositum* VELDK.
1. Leaves palmatifid to -partite, middle segment free for at most 0.9th of its length, usually much less.
 3. Lower leaf surface very densely grey to silvery hairy, sometimes brown when dried, the indument obscuring the venation. West New Guinea (Carstensz to Star Mts; 15 coll.) 10. *G. monticola* RIDL.
 3. Lower leaf surface variously strigose, the indument not obscuring the venation, often making it more prominent, instead.
 4. Middle leaf segment entire, the laterals sometimes with a lobe, rarely the middle segments of some leaves 2- or 3-lobed, leaves then glabrous on the upper surface, 5-partite, and petals pink.
 5. Upper surface of the leaves strigose-setose. Peduncle at anthesis already 18-23 mm long. Papua New Guinea (Mt Saruwaket; 1 coll.) 6. *G. editum* VELDK.
 5. Upper surface of the leaves glabrous. Peduncle in fruit 0-11 mm.
 6. Leaves 7-fid, middle segment free for 0.5-0.6th of its length, 0.8-2 mm wide at the base of its free part. Papua New Guinea (Mts Giluwe, Wilhelm, Bangeta; 10 coll.) 7. *G. hyperacrion* VELDK.
 6. Leaves 5-partite, middle segment free for 0.8-0.9th of its length, 0.5-0.7 mm wide at the base of its free part. West New Guinea (Mt Wilhelmina; 3 coll.) 15. *G. wilhelminae* VELDK.
 4. Middle leaf segment lobed, in some upper or reduced leaves occasionally entire and rarely also glabrous on the upper surface, then 5-7-fid or petals purple.
 7. Upper leaf surface glabrous or sparsely and patchily long-strigose.
 8. Petals 9-16 mm long, purple (? always), 1.7-2.1 times as long as the 5.5-7.6 mm long sepals. West New Guinea (Carstensz, Star, Piora Mts; 9 coll.) 12. *G. papuanum* RIDL.
 8. Petals 4.5-6 mm long, white to pink, 1.2-1.4 times as long as the 3.5-4.8 mm long sepals.
 9. Upper leaf surface patchily long-strigose. West New Guinea (Mt Wilhelmina; 1 coll.) 8. *G. lacustre* VELDK.
 9. Upper leaf surface glabrous or with some long hairs near the margin. Papua New Guinea (Wharton Ra.; 6 coll.) 14. *G. whartonianum* VELDK.
 7. Upper leaf surface evenly strigulose to strigose.
 10. Leaf blade fairly large, usually over 15 by 25 mm.
 11. Inflorescences strictly 1-flowered. Peduncle 25-41 mm. Sepals 5-6 mm long, in fruit 7.5-9 mm. Petals 5.5-7.5 mm long. Java (Mt Merbabu eastward to Mt Tengger; 13 coll.) 2. *G. ardjunense* Z. & M.
 11. Inflorescences usually 2-flowered. Pedicels 9-16 mm. Sepals 3.5-5 mm long, in fruit 3.8-7.5 mm. Petals 3.5-6 mm long. New Zealand, Tasmania, East Australia, Timor, East Java (Mt Tengger); 12 coll. 3. *G. homeanum* TURCZ.
 10. Leaf blade fairly small, usually less than 15 by 25 mm.
 12. Middle leaf segment pinnately lobed. Peduncle in fruit 55-150 mm. Ceylon, Nilghiris, Himalayas (Afghanistan to W. China), N. Sumatra (one coll.) 1. *G. nepalense* SWEET
 12. Middle leaf segment 3-lobed, its outer lobes rarely with a lateral tooth. Peduncle in fruit 0-45 mm.
 13. Leaf blades 7-fid to -partite. Peduncle in fruit 0-3 mm long. Papua New Guinea (Star, Kinkain, Wilhelm and Saruwaket Mts; 11 coll.) 5. *G. balgooyi* VELDK.
 13. Leaf blades 5-partite. Peduncle in fruit 6-45 mm.
 14. Inflorescences 1- or 2-flowered. Peduncle in fruit 6-20 mm, pedicel then 4-15 mm. Petals red-purple. SW. Celebes (Mt Bonthain; 2 coll.) 4. *G. frigidurbis* MOERMAN

14. Inflorescences strictly 1-flowered. Peduncle in fruit 19–45 mm, pedicel then 16–31 mm. Petals white to pinkish. Papua New Guinea (Sugarloaf, Giluwe, Saruwaket to Dayman Mts; 24 coll.)
11. *G. niuginiense* VELDK.

Goodeniaceae

- 5: 339a, 1. *Scaevola sericea* VAHL, Symb. Bot. 2
6: 951a (1791) 37. — *S. taccada* (GAERTN.) ROXB.
Hort. Beng. (1814) 15. JEFFREY, Kew Bull.
34 (1980) 543.

For extremely formal meticulous-nomenclatorial reasons JEFFREY has advanced that *S. sericea* should be the proper combination.

Hydrocharitaceae

- 5: 396a, Change 1. *Limnobiium stoloniferum* (*laevigata*) into:
7: 828b

1. *Hydromystria laevigata* (H. & B. ex WILLD.) DIAZ-MIRANDA & PHILCOX, Bot. J. Linn. Soc. 83 (1981) 321, 6 fig.

The generic name *Hydromystria* G. MEYER, Prim. Fl. Esseq. (1818) 152 antedates the synonym *Limnobiium* RICH. ex STEUD. (1841).

Icacnaceae

- 7: 15 *Gonocaryum* MIQ.
Add to Distr.: Lesser Sunda Is. (West Flores), probably *G. macrophyllum* (BL.) SLEUM.
7: 55 Replace the name *Nothapodytes foetida* by:
1. *Nothapodytes nimmoniana* (J. GRAH.) MABBERLEY in K.S. Manilal (ed.), Bot. Hist. Hort. Mal. (1980) 88; Taxon 29 (1980) 606. — *N. foetida* (WIGHT) SLEUM.; Fl. Males. I, 7 (1971) 55. — *Premna nimmoniana* J. GRAH. Cat. Pl. Bombay (1839) 155.

The basionym antedates that of *Stemonurus foetidus* WIGHT by six years.

- 7: 56 *Stemonurus* Bl.
Add to Distr.: Lesser Sunda Is. (Flores; near Paku, 900 m, SCHMUTZ 3371, specimen in fr.; identified by SLEUMER).

This collection nicely fills a gap in the generic range and shows again that the Lesser Sunda Islands flora fits in with the rest of Malesia.

- 7: 73 *Sarcostigma* W. & A.
Add to Distr.: Lesser Sunda Islands (Flores).
7: 75b *Sarcostigma paniculata* PIERRE.
Add to Distr.: Lesser Sunda Is. (Flores; Paku, 500 m, SCHMUTZ 4818a).

Juncaceae

- 4: 213b *Juncus bufonius* L.
Add to Distr.: Borneo (Sabah: Mt Kinaba-

lu), 3300–3760 m alt.

VELDKAMP (Reinwardtia 10, 1982, 25) noted that the specimens differ in many details from the common form. I still consider it an alien brought by tourists.

- 4: 214 Add the following species:
5. *Juncus nupela* VELDK. Blumea 24 (1977) 415.

Distr. *Malesia*: Central New Guinea (Star Mts, Tel Basin, 3000 m, VELDKAMP 6369).

Note. The author finds this to be allied to the northern hemisphere *J. balticus* WILLD. and tabulated differences with three other species, including *J. inflexus* L. No developed ovules could be found.

- 4: 214 *Luzula* DC.

R. BROWN and BENTHAM assumed the Australasian specimens of *Luzula* to belong to a broad concept of *L. campestris*. In this they were followed by BUCHENAU in his monograph, except that the latter distinguished them to represent an outlying variety, *var. australasica*. MERRILL (1922) accommodated the Philippine specimens also in *L. campestris sensu lato*. BACKER (Fl. Males. I, 4, 1951, 215) identified the Philippine and Papuan specimens as belonging to the variety.

The precise naming of the Australasian specimens of this affinity complex from Australia, Tasmania and New Zealand has given rise to a confused nomenclature and species distinction which M. E. JANSEN has tried to solve (Blumea 24, 1978, 527–532, 1 fig.). For Malesia he distinguished two new endemic species, *L. philippinensis* M. E. JANSEN and *L. papuana* M. E. JANSEN. In the key he did not include how they are distinguished from *L. campestris* (L.) DC. It must be left to a future monographic study of the genus to see whether these two taxa can be upheld at specific rank.

Labiateae

- 8: 338b *Leucas lavandulifolia* J. E. SM. Change into:
3. *Leucas linifolia* (ROTH) SPRENG. Syst. Veg. ed. 15, 2 (1825) 743; BTH. Lab. Gen. Sp. (1834) 617, (1835) 744; FOSBERG & SACHET, Smithson. Contr. Bot. 47 (1981) 25. — *Phlomis linifolia* ROTH, Nov. Pl. Sp. Ind. Or. (1821) 260. — *L. lavandulaefolia* J. SM. in Rees, Cycl. (1812) LEU 20, *nom. illeg.* (superfl.); KENG, Fl. Males. I, 8 (1978) 338.

Note. SMITH's name is illegitimate as a

superfluous name since he cited *Leonurus indicus* L. as a synonym. *Leonurus indicus* can no longer be transferred to *Leucas*, because of *L. indica* R.Br. ex SPRENG., based on *Phlomis indicus* L.

- 8: 340b *Leucas flaccida* R.Br. Change into:
 6. *Leucas decemdentata* (WILLD.) J.Sm. in Rees, Cycl. (1812) LEU 20; DRAKE, Ill. Fl. Ind. Mar. Pac. (1890) 263; FOSBERG & SACHET, Smithson. Contr. Bot. 47 (1981) 25. — *Stachys decemdentata* SOL. ex FORST. f. Prod. (1768) 91, nomen. — *Phlomis decemdentata* WILLD. Sp. Pl. 3 (1800) 124. — *L. flaccida* R.Br. Prod. (1819) 505; KENG, Fl. Males. I, 8 (1978) 340. — *L. stachyoides* SPRENG. Syst. Veg. ed. 15, 2 (1825) 743.
- 8: 361 *Satureia gracilis* (BTH.) LOES.
 Add to Distr.: Borneo: Sabah (Headquarters Taman Negara Sabah, c. 1560 m alt., R. H. WILLEMSE 605, in disturbed places).

Liliaceae

- 9: 213 *Thysanotus tuberosus* R.Br.
 In a recent revision of the genus *Thysanotus* N. H. BRITTAN (Brunonia 4, 1981, 67–181) assigned the Papuan specimens to *T. banksii* R.Br., a name which since BENTHAM's Flora was considered a synonym. In the key it appears that the minute differential characters either do not hold or are inconsistent with the descriptions. I cannot accept *T. banksii* as a distinct species.
- 9: 234a *Astelia alpina* R.Br.
 Add to Distr.: West Central Celebes (Lati-modjong Range; Mt Rante Mario, summit zone, very local).
 Note. The collection was made by Dr. J. M. B. SMITH in February 1981 and is a remarkable addition.

Loganiaceae (LEENHOUTS)

- 6: 293 Wood anatomy. See A. M. W. MENNENGA in E. & P. Nat. Pfl. Fam. ed. 2, 28b I (1980) 112–161.
 Palynology. See W. PUNT in E. & P. Nat. Pfl. Fam. ed. 2, 28b I (1980) 162–191.
- 6: 294 Phytochemistry. See N. G. BISSET in E. & P. Nat. Pfl. Fam. ed. 2, 28b I (1980) 211–237.
- 6: 295 Delimitation and subdivision. See A. J. M. LEEUWENBERG *et al.* in E. & P. Nat. Pfl. Fam. ed. 2, 28b I (1980) 1–255.
 FOSBERG & SACHET (Smithson. Contr. Bot. 45, 1980, 18–19) suggest the combination of *Loganiaceae-Potalieae* with *Gentianeaceae-Tachiineae*, preferably as part of the *Gentianeaceae*, but on rather vague and superficial arguments. This seems at least contrary to wood anatomical data (MENNENGA, *l.c.* 158) and to palynology (PUNT, pers.

comm., 1980).

- 6: 308a *Fagraea fragrans* ROXB.
 Add to Distr.: Ceylon, the whole of Indo-China, SW. New Guinea.
- 6: 320a Insert the following species:
 8a. *Fagraea graciliflora* LEENH. Blumea 27 (1981) 209.
 Distr. *Malesia*: Central Celebes (Mt Roroka Timbu; VAN BALGOOY 3247, DE VOGEL 5390).
 Eco1. Montane ridge forest dominated by conifers and *Fagaceae*, at c. 2100 m. Fl. May.
 Note. Though the texture of the flowers and the distinctly exerted stamens and style remind of the situation in *sect. Cyrtophyllum*, the new species will have to be included in *sect. Fagraea* which is the most primitive in the genus (*cf.* PUNT & LEENHOUTS, Grana Palynol. 7, 1967, 510–515). It is closest allied to *F. tubulosa* BL. which is found in Sumatra and Malaya.
 In the key given in Fl. Males. I, 6 (1962) 302, the new species keys out under the first lead of couplet 19 as *F. tubulosa* BL. from which it can be distinguished as follows:
 19a. Leaves about 2 times as long as wide. Inflorescences glomerulous, with bracteoles. 8. *F. tubulosa*
 19a. Leaves 13.5–22 by 4–6.5 cm, 2.5–4 times as long as wide. Inflorescence a terminal 3-flowered cyme and in the axil of the upper leaf-pair either a cyme or a solitary flower. Bracteoles absent. 8a. *F. graciliflora*
- 6: 320b *Fagraea ridleyi* K. & G.
 Add to Notes: Though typical specimens of *F. blumei* and *F. ridleyi* are clearly distinct, fruiting material is not always easy to name, especially in Borneo. As a whole the number of flowers and fruits is smaller in the present species, the pedicel and calyx in fruit are less densely warty, the calyx is larger, the nerves are fewer in number and more prominent beneath, the axillary scales are less conspicuous, and the dried leaves are more olive yellow, in contrast to the usually dark reddish-brown ones of *F. blumei*.
- 6: 328a *Fagraea auriculata* JACK.
 Add to Distr.: Great Nicobar (*cf.* Fl. Males. Bull. no 29, 1976, 2547) and Celebes.
- 6: 328b Add to Notes: VAN BALGOOY 3492 from Central Celebes combines the long-petioled leaves with small auricles of *ssp. parviflora* with the large flowers of *ssp. auriculata*. The collection VAN BALGOOY 3678, also from Central Celebes, represents *ssp. borneensis*.
- 6: 331a *Fagraea resinosa* LEENH.
 Add to description: Tree, 7.5–9 m by 2–20 cm, or climber. Leaves 8–16 cm long, width from 3.5 cm onwards. Bracteoles 2

and 3 cm resp. Calyx 3–3.5 cm high, in fruit up to 4 cm.

Add to Distr.: Sarawak (4th Div.), N. Borneo (Mt Kinabalu; Sandakan Distr., Telupid).

Add to Ecol.: Altitude up to 1550 m.

- 6: 336 *Buddleja* HOUST. ex LINNÉ.
Add to literature: LEEUWENB. Meded. Landbouwhogeschool 79-6 (1979) 1–163.

- 6: 359a *Strychnos axillaris* COLEBR.

Add to Distr.: Ceylon.

- 6: 365, 959 *Neuburgia corynocarpa* (A. GRAY) LEENH. In a detailed study of the specimens of *N. corynocarpa* in Papua B. J. CONN (Brunonia 2, 1979, 99–105, 4 fig.) has come to the conclusion that *N. sarcantha* (GILG & BENED.) LEENH. Fl. Males. I, 6 (1962) 366 cannot well be distinguished at specific level. Accordingly he reduced this to a variety of the former, var. *sarcantha* (GILG & BENED.) B. J. CONN, which he keyed out (*l.c.* 104). He also described the structure of seedlings.

Distr. Add: Moluccas (Obi) and New Ireland.

Note. An isotype of *N. sarcantha* is found in B (LEDERMANN 13005) and replaces the neotype with which it completely agrees.

- 6: 371 *Geniostoma* FORST.
Recently B. J. CONN (Blumea 26, 1980, 245–364, 29 fig.) made a world revision of the genus resulting in the name change of one and the creation of a new species. He also gave a new key to the species of Papuaia (incl. Solomons). In using my key (Fl. Males. I, 6, 1962, 371) the two can be accommodated in couplet 3, second lead, after:

3. Corolla 2–4 mm long.

4. Pistil hairy 4. *G. antherotrichum*

4. Pistil glabrous 5. *G. leenhoutsii*

4. *Geniostoma antherotrichum* GILG & BENED. Bot. Jahrb. 54 (1916) 158, f. 2; LEENH. Fl. Males. I, 6 (1962) 371, as syn. under *G. rupestre*; B. J. CONN, Blumea 26 (1980) 317, f. 15. — *G. arfakense* KAN. & HAT. Bot. Mag. Tokyo 56 (1942) 163, f. 7; LEENH. Fl. Males. I, 6 (1962) 373.

Note. This species has a variety:

var. *archboldianum* (MERR. & PERRY) B. J. CONN, Blumea 26 (1980) 320, f. 15G. — *G. archboldianum* MERR. & PERRY, J. Arn. Arb. 23 (1942) 408.

Distinct by smaller leaves (2–6 by 1–2 cm) and flowers solitary or in triads. A few collections intermediate with the type variety.

5. *Geniostoma leenhoutsii* B. J. CONN, Blumea 26 (1980) 323, f. 17.

Distr. Solomons (type), in Malesia: Papua New Guinea (Central Distr.: Woitape); in all 2 specimens known.

Note. I doubt whether this new species will be tenable. — Edit.

Myoporaceae

- 4: 265a *Myoporum papuanum* KRAENZL.
Add to Distr.: Lesser Sunda Is.: W. Timor (Kie, near Amanubar, C. W. KOOY 1271, dated 7-2-1981).

Pittosporaceae

- 6: 962b *Pittosporum pumilum* SCHODDE.
Add to literature: STEEN. Blumea 24 (1978) 482.

Add to description: Pedicels 6 mm. Flowers functionally female, deep purple. Sepals 5, free, ovate-oblong, blunt, long-hairy, 5 by 2.5 mm. Petals 5(–6), cohering at base, ligulate, glabrous, bent outwards, apex rounded, c. 12 by 2.5 mm. Stamens reduced, c. 3 mm. Ovary densely brown-hairy, ellipsoid, 4 by 2 mm; style glabrous 1 mm. Fruit red to deep-brown.

Add to Distr.: Papua New Guinea, Mt Kenive (Nisbet), 2500 m, LAE 65011; *fl.* July.

Proteaceae

- 5: 195b *Macadamia hildebrandii* STEEN. Add:
Uses. This endemic tree of Celebes has been successfully planted as a fire-lane tree in the very large plantations of *Pinus merkusii* in the Aek na Uli area, on the north flank of Toba Lake (N. Sumatra). Thirty years old trees have the virtue of keeping dense foliage and branching from the base upwards.

Rhizophoraceae

- 5: 429 The distinction of sterile material of *Rhizophora* and *Bruguiera* may give difficulty. Dr. DING HOU found an easy way for identification (Blumea 10, 1960, 628) by means of a hand-lens. In *Bruguiera* the leaf-scars show 3 distinct, usually horseshoe-shaped bundles of leaf traces. In *Rhizophora* there are several vascular bundles in two rows or a crescentic pattern. This was recently also advanced by KENNEALLY *c.s.* in their work on Australian mangroves (Nuytsia 2, 1978, 178–180, 1 fig.).

Styracaceae

- 4: 53a *Styrax crotonoides* CLARKE *ssp.* *fraserensis* (PUTZ & NG) STEEN., *comb. nov.* — *S. fraserensis* PUTZ & NG. Mal. For. 40 (1977) 249, f. 1; Tree Fl. Malaya 3 (1978) 263.

A small tree. Average mature leaves 6–10.5 by 2.5–5 cm; nerves 4–6 pairs.

Fruits roundish, c. 2 cm diam.

Distr. *Malesia*: Malaya: Fraser's Hill, at c. 1300 m.

Notes. I have carefully compared the descriptive data with those of *S. crotonoides*, but find no essential differences, and also that the ones mentioned are slightly overlapping. In the species the mature leaves average 8.5–20 by 4–10 cm, nerves 5–9 pairs. Fruit round to ovoid, tending to have a smallish or indistinct tip at apex, 1.7–3 cm diam. Lowland, 90–300 m.

Obviously a hill race, with smaller leaves. The shape of the fruit induced me to maintain it as a taxon.

4: 54b *Styrax ridleyanum* PERK.

PUTZ & NG (Tree Fl. Malaya 3, 1978, 264) have discarded this from Malaya and find the specimen YEOH KEP 3639 best to place under the allied *S. benzoin* DRYAND. because of the short inflorescence. I must admit that this is indeed no differentiating character. I had no opportunity to re-study this specimen.

However, another one, also with short inflorescence, exactly tallies with the differences with *S. benzoin* as given in the key of my elaborate treatment (Bull. Jard. Bot. Btzg. III, 12, 1932, 223): twigs dark brownish; leaves with smaller stellate scales than in *S. benzoin*; buds rather broad; petals inside appressed-pubescent all over; connective *ditto*; stigma 3-lobed, much wider than the style.

Distr. *Malesia*: Malaya: K. Trengganu, Bt Lah, off Sg. Nerus, near Kp. Merjor, SINCLAIR & KIAH SF 40896 (dupl. in L).

Note. I expect that KEP 3639 from Kuantan will turn out to belong to *S. ridleyanum*, as I studied this in 1932.

Symplocaceae

8. 239b Insert the following species:

5a. *Symplocos columbuli* NOOT. Blumea 26 (1980) 417, fig.

Distr. *Malesia*: N. Sumatra, Leuser Reserve, in montane moss forest, 2100–2500 m.

Note. In NOOTEBOOM's key to fruiting material (Fl. Males. I, 8, 1977, 231) it comes out in two places because the leaves are hairy underneath but finally glabrous, viz. via lead 3a to couplet 8, from the two species of which it is distinguished by: fruits narrow-ellipsoid, c. 15 mm long, with c. 10 conspicuous lengthwise ribs. Via lead 3b one arrives at couplet 25, where the same characters single it out.

Sofar only known in the fruiting state; affinity probably with *S. atjehensis* NOOT. from the same area.

8: 267 *Symplocos ophirensis* CLARKE var. *kaliensis* STONE, Mal. For. 43 (1980) 260, f. 6.

Distr. *Malesia*: Malaya: Pahang, G. Ulu Kali, STONE 13965.

Note. According to STONE closest to var. *densereticulata* NOOT., differing in a glabrous disk, branches, and fruit, style 5 mm. From all other varieties different by a rounded leaf base and a convex petiole.

Ulmaceae

8: 61b *Celtis paniculata* (ENDL.) PLANCH.

Add to synonymy: *Strombosia philippinensis sensu* LAM & HOLTH. Blumea 5 (1942) 178.

Add to Distr.: Moluccas (Talaud Is.: LAM 3175).

Umbelliferae

4: 131 Add the following species:

5. *Oreomyrrhis plicata* MATHIAS & CONSTANCE, J. Arn. Arb. 58 (1977) 190, f. 1–6. — Fig. 3.

Leaves tufted at apex of a thick, hardly branched ligneous stem 5–15 cm long, erect, linear to lanceolate, 1-pinnate, the sheathing petiole about as long as the blade; blade 1–4 cm by 1–3 mm, plicate, segments 5–11, linear, 2–5 mm long, erect, entire. Peduncles erect, solitary, exceeding the leaves, 2.5–12 cm long. Flowers pedicelled, in a head.

Distr. *Malesia*: Papua New Guinea (Mt Suckling, summit of Goë Dendeniwa: VELDKAMP & STEVENS 5748), 3325–3625 m, rocky ridges.

Note. Distinctly different from all other species by the simply pinnate leaves, folded lengthwise, with closely adpressed, linear, entire leaf segments.

4: 131b Replace 2. *Apium tenuifolium* by:

2. *Apium leptophyllum* (PERS.) F.V.M. ex BTH. Fl. Austr. 3 (1866) 372; BACK. & BAKH. f. Fl. Java 2 (1965) 175. — *Cnidium tenuifolium* MOENCH. Meth. (1794) 98, excl. syn. *Pimpinella dioica* L., nom. illeg. — *Pimpinella leptophylla* PERS. Syn. 1 (1805) 324. — *Helosciadium leptophyllum* (PERS.) DC. Mém. Soc. Phys. Genève 4 (1828) 493; Prod. 4 (1830) 105, cum syn. numer. — *Apium tenuifolium* (MOENCH.) THELL. in Hegi, Ill. Fl. Mitteleur. 5, 2 (1926) 1140, nom. illeg.; BUWALDA, Fl. Males. I, 4 (1949) 131.

Distr. Southern hemisphere, introduced in various countries: Europe, India, Taiwan, Pacific Islands (Hawaii: Kauai; Fiji, H. J. LAM 6827); in *Malesia*: Java (W.: Lembang; E.: Pudjong, Trètès, EVERAARTS, in litt.), Philippines (Luzon: Ba-

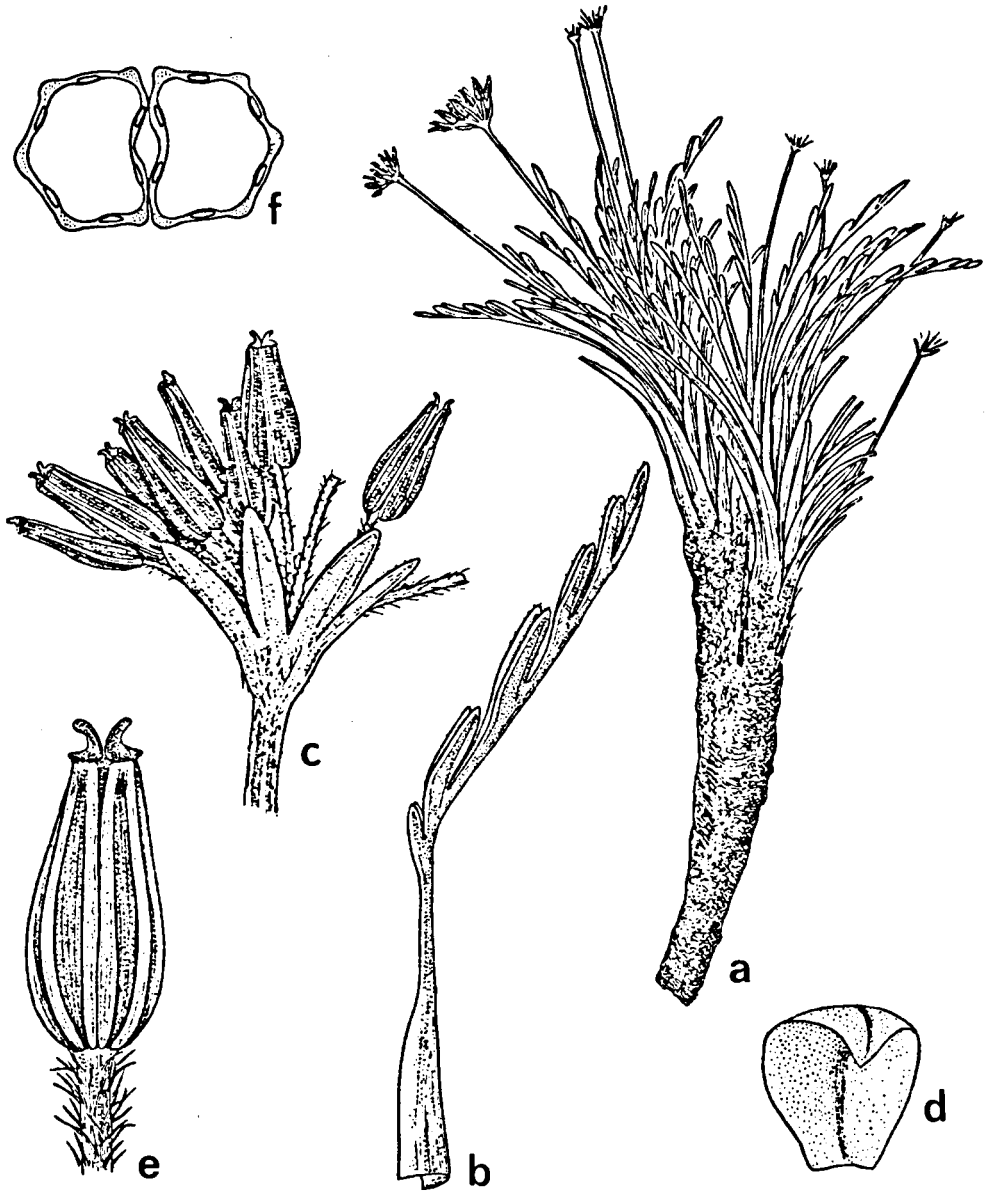


Fig. 3. *Oreomyrrhis plicata* MATHIAS & CONSTANCE. *a.* Habit, $\times 0.5$, *b.* foliage leaf, nat. size, *c.* fruiting umbel, $\times 2.5$, *d.* petal, $\times 9$, *e.* intact mature fruit, $\times 7$, *f.* fruit transection, $\times 10$ (Courtesy Journal Arnold Arboretum).

guio, PNH 35028, 35842), Papua New Guinea (Western Highlands, Minj Distr., NGF 41801; Morobe Distr., Sattelberg, CLEMENS 1720; Wau: NGF 29146; Goroka: McKEE 1160).
Ecol. Fields, wastelands, roadsides, old

walls, 800–1500 m alt.

Xyridaceae (B. HANSEN, Copenhagen)

4: 368 Replace the key to the species of *Xyris* L. by the following:

KEY TO THE SPECIES

1. Median bracts at apex emarginate, margin otherwise entire, grey field 2 by 1.2 mm. Burma, Thailand, Vietnam **X. lobbii** RENDLE
1. Median bracts not emarginate, although sometimes irregularly torn, if emarginate then margins obviously lacerate above.
 2. Median bracts with upper margin lacerate.
 3. Margin of leaves formed by numerous retrorsely pointing, coalescent rows of cells, rough from small tubercles; scape compressed, usually with two strong ridges **1. X. complanata**
 3. Margin of leaves not so; scape terete, with low ridges **2. X. bancana**
 2. Median bracts not lacerate at margin, rarely with a few dents.
 4. Scape terete with 6–15 longitudinal ridges, leaves up to 8 mm wide with short transverse ribs connecting the longitudinal ones **3. X. indica**
 4. Scape terete to compressed, without ridges or with 1–7 ridges, leaves never with transverse ribs.
 5. Leaves 6–20 mm wide, inflorescence depressed hemispherical, wider than long; plant extremely robust **4. X. grandis**
 5. Leaves up to 6, rarely 7.5 mm wide, inflorescence ellipsoid, globular or longer than wide.
 6. Median bracts without a greenish or greyish field below apex, at most with a ± conspicuous, narrow ridge **5. X. capensis**
 6. Median bracts with a greyish or greenish field below apex.
 7. Leaf sheath with margin ± finely ciliate below, oblong-triangular greyish-brown field below apex of median bracts 3–10 times longer than wide, not protruding upwards **6. X. wallichii**
 7. Leaf sheath not ciliate below, triangular greyish field below apex of median bracts at most 2.5 times longer than wide.
 8. Scape 4-angular with papillate longitudinal ridges; leaves with papillate margins, otherwise smooth **7. X. oligantha**
 8. Scape terete, without ridges.
 9. Lateral sepals with smooth, entire crest.
 10. Plants gracile, leaves at most 3 mm wide, often rough by protruding cell walls (when dry), grey field on median bracts ridge-like protruding towards apex of bract **8. X. pauciflora**
 10. Plants robust, leaves more than 3 mm wide, not rough, grey field on median bracts not protruding towards apex of bract although convex. Burma, Thailand, Laos, Cambodia, Vietnam **X. intersita** MALME
9. Lateral sepals with crest coarsely serrate, often by 1–3 dents only.
 11. Plants robust, field on median bracts 1.8–2.6 by 1.4–2.6 mm, not protruding; with subglobose underground tubers. Thailand, Laos, Cambodia **X. tuberosa** RIDL.
 11. Plants gracile, grey field on median bracts 1–2.2 by 0.4–1.5 mm, ridge-like protruding towards apex of bract; without tubers **8. X. pauciflora**

4: 369 **1. Xyris complanata** R.Br. Prod. 1 (1810) 256; v. ROYEN, Fl. Males. I, 4 (1953) 369. — *X. indica* auct., non LINNÉ: VAHL, Symb. Bot. 3 (1794) 7, p.p. *quoad spec.* KOENIG. — *X. anceps* auct., non LAMK: VAHL, En. Pl. 2 (1805) 205. — *X. elongata* RUDGE, Trans. Linn. Soc. 10 (1811) 289. — *X. walkeri* KUNTH, En. Pl. 4 (1843) 19. — *X. malaccensis* STEUD. Syn. Pl. Glum. 2 (1855) 287.
Distr. Ceylon, India, China (Hainan), Indochina, Thailand, throughout *Malesia* to Australia.
Ecol. Open, wet places on sandy soil, often among grasses and *Sphagnum*, from sea level to 1600 m.

2. Xyris bancana MIQ. Fl. Ind. Bat., Suppl. (1861) 608; v. ROYEN, Fl. Males. I, 4 (1953) 369, incl. var. *lacerata* v. ROYEN, l.c. 370. — *X. ridleyi* RENDLE, J. Bot. 37 (1899) 505; v. ROYEN, Blumea 7 (1953) 309, incl. var. *penicillata* v. ROYEN, Fl. Males. I, 4 (1953) 370, 371. — *X. borneensis* RENDLE, J. Bot. 37 (1899) 506; v. ROYEN, Fl. Males. I, 4 (1953) 370. — *X. chinensis* MALME, Svensk Bot. Tidskr. 21 (1927) 386. — *X. glaucella* MALME, Bull. Jard. Bot. Botz III, 10 (1929) 388. — *X. subcomplanata* MALME, Bull. Mus. Hist. Nat. Paris II, 2 (1930) 685. — *X. papuana* v. ROYEN, Blumea 7 (1953) 307; Fl. Males. I, 4 (1953) 371.
Distr. Thailand, Cambodia, Vietnam,

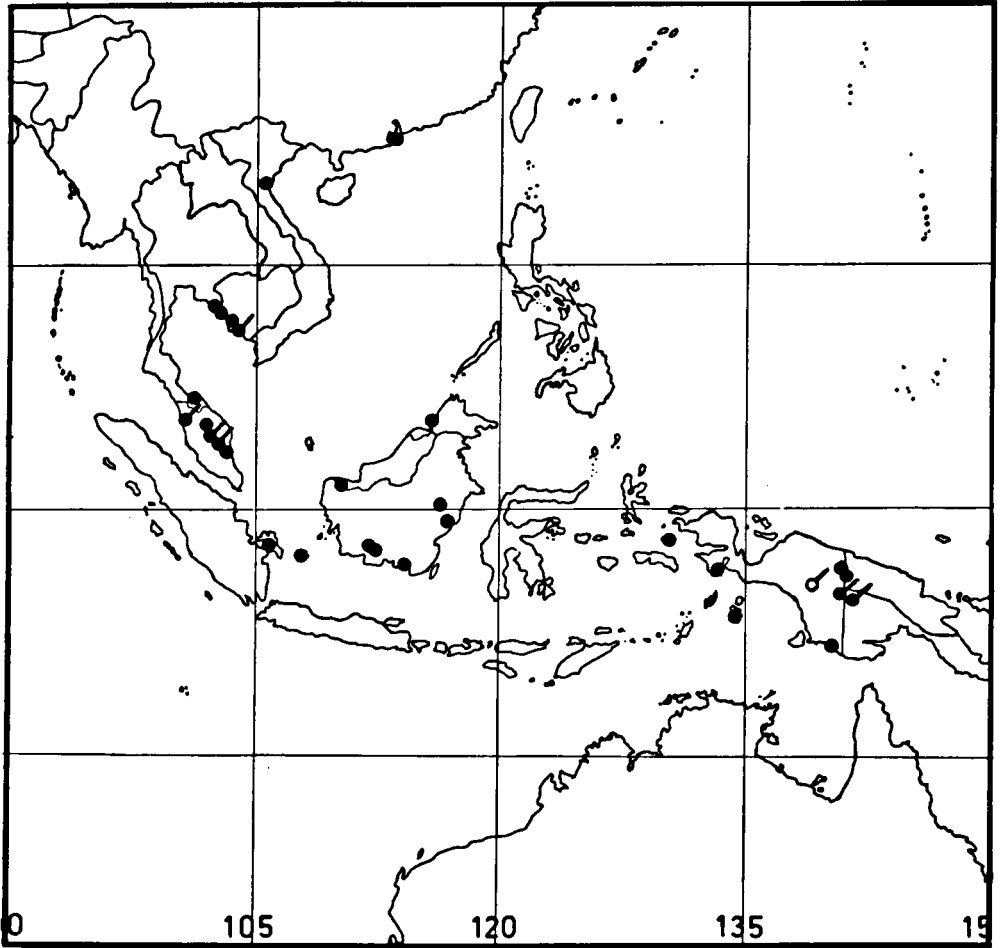


Fig. 4. Distribution of *Xyris bancana* Miq. The dots provided with an oblique line represent localities above 1000 m altitude.

Hong Kong; in *Malesia*: Sumatra (Banka), Malaya (Kedah Peak), Borneo, New Guinea (Misool I.; Aru Is.: Trangan) as far east as Sepik. Fig. 4.

Ecol. On (temporarily) boggy or wet, invariably acid, sandy soils (kerangas, sandstone, heath woodland), largely confined to low altitudes below 100 m, but in Indochina and Malaya at 1100–1300 m and in West New Guinea on the Star Mts at 1200–1300 m and on white sands in the Baliem Valley at 2000 m, nowhere at altitudes between. Fig. 4.

3. *Xyris indica* LINNÉ, Sp. Pl. 1 (1753) 42;

v. ROYEN, Fl. Males. I, 4 (1953) 373. — *X. robusta* MART. in Wall. Pl. As. Rar. 3 (1832) 30. — *X. calocephala* Miq. Fl. Ind. Bat. 3 (1857) 527. — *X. capito* HANCE, J. Bot. 14 (1876) 262.

Distr. Ceylon, India, Burma, China (Hainan), Thailand, throughout *Malesia* to Australia.

Ecol. On open, swampy places and along or in ricefields in the lowland, rarely up to 900 m.

4. *Xyris grandis* RIDLEY, J. Linn. Soc. Bot. 38 (1908) 332; v. ROYEN, Fl. Males. I, 4 (1953) 372. — *X. chlorocephala* v. ROYEN,

Blumea 7 (1953) 308; Fl. Males. I, 4 (1953) 372.

Distr. Indochina, Thailand, in *Malesia*: Malay Peninsula, Sumatra.

Ecol. In wet places, among mosses over rocks, 500–2200 m.

5. *Xyris capensis* THUNB. Prod. Fl. Cap. (1794) 12; NILSSON, Öfvers. Förh. Kongl. Svenska Vet.-Akad. 48 (1891) 155, incl. var. *nilagirensis* (STEUD.) NILSSON et var. *schoenoides* (MART.) NILSSON; v. ROYEN, Fl. Males. I, 4 (1953) 374, incl. var. — *X. schoenoides* MART. in Wall. Pl. As. Rar. 3 (1832) 30. — *X. nilagirensis* STEUD. Syn. Pl. Glum. 2 (1855) 288. — *X. melanocephala* MIQ. Fl. Ind. Bat. 3 (1857) 528. — *X. sumatrana* MALME, Bull. Jard. Bot. Btzg III, 10 (1929) 391. — *X. novoguineensis* HATUS. Tokyo Bot. Mag. 56 (1942) 422. — *X. flabellata* v. ROYEN, Blumea 7 (1953) 308; Fl. Males. I, 4 (1953) 375.

Distr. S. America, S. Africa, India, Thailand, Indochina, China, throughout *Malesia*.

Ecol. In open, swampy places among sedges on *Sphagnum*, 600–3300 m.

6. *Xyris wallichii* KUNTH, En. Pl. 4 (1843) 16. — *X. oreophila* RIDL. J. Fed. Mal. St. Mus. 7 (1916) 121; v. ROYEN, Fl. Males. I, 4 (1953) 372. — *X. malmei* v. ROYEN, Blumea 7 (1953) 307; Fl. Males. I, 4 (1953) 370.

Distr. India (Silhet, Khasya), Burma (Moulmein), Vietnam (Chapa), Thailand; in *Malesia*: Malay Peninsula.

Ecol. In wet, mossy places on rocks, 850–1300 m.

7. *Xyris oligantha* STEUD. Syn. Pl. Glum. 2 (1855) 288. v. ROYEN, Fl. Males. I, 4 (1954) 599. — *X. pauciflora* auct., non WILLD.: R. BR. Prod. 1 (1810) 256, *quoad descr.*

Distr. Australia (Cape York Peninsula); in *Malesia*: Aru Is. and New Guinea (Papua, Western Distr.).

Ecol. In wet, sandy places among sedges and grasses, up to 60 m.

8. *Xyris pauciflora* WILLD. Phytogr. 1 (1794) 2; v. ROYEN, Fl. Males. I, 4 (1953) 371. — *X. pauciflora* var. *oryzetorum* MIQ. Fl. Ind. Bat. 3 (1857) 529. — *X. dajacensis* v. ROYEN, Blumea 7 (1953) 308; Fl. Males. I, 4 (1953) 372. — *X. maritima* KOYAMA, Philip. J. Sc. 84 (1956) 367.

Distr. Ceylon, India, Burma, Thailand, Indochina, China, Hong Kong, Taiwan, throughout *Malesia* to Australia.

Ecol. In open, wet places on sandy soil, from sea level up to 900 m.

The following species have to be Excluded:

4: 369b *Xyris tuberosa* RIDLEY, J. Fed. Mal. St. Mus. 10 (1920) 122.

Distr. So far recorded from Laos, Cambodia and Thailand (type, 'Mainland shores of Takuapa') only.

4: 371b *Xyris lobbii* RENDLE, J. Bot. 37 (1899) 506, t. 403, f. 17–24.

Distr. So far recorded from Burma (type), Thailand and Vietnam only.