BLUMEA 29 (1984) 399–408

MISCELLANEOUS BOTANICAL NOTES XXVII*

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160. SOME NOTES ON FAGACEAE

In a recent thesis B.S. Fey (Zürich) has developed a new theory about the origin of the cupule in Fagaceae. He has concluded that the appendages (spines, lamellae, etc.) on the outside of the cupule are regularly arranged and that they reflect a condensation (concrescence) of a dichasial flower system, so that cupule and fruit(s) form *together* the representation of one ancestral inflorescence; the cupular appendages would then largely represent the bracts of the ancestral inflorescence.

This stands in contrast with former opinions, in which the cupule was interpreted as of separate vegetative origin from the nut(s) which was (were) the remain(s) of the inflorescence.

I cannot agree with this 'unified' hypothesis, for which I have given arguments in my monograph (1953) of *Nothofagus*.

In *Nothofagus* the stipules carry at the inside of their insertion always characteristic colleters. Such colleters occur also, though in smaller quantity, at the inside of the cupular appendages, which are, in *Nothofagus*, lamellae. To me they represent a 'tracer' for the interpretation of their ancestral origin, namely that the cupule is of vegetative origin and the result of a condensation of twigs, a condensed concrescent system of stipules covering an inner 'lining' of a twig. This also readily explains the regularity in the structure of the cupule which in *Nothofagus* tends to be 4-valved and would agree with stipules in four rows in the distichous phyllotaxis.

In Fey's study the above argument is omitted; it would not suit his interpretation of the bracteal nature of the cupule.

Nothofagus discoidea (Baum. Bodenh.) Steen., Adansonia 11 (1971) 623.

N. discoidea is the only species among the five known from New Caledonia which has one nut in a cupule and it appears now also to be the only species with solitary male flowers, which were as yet not described.

Male flowers: Pedicel very short. Perianth greenish white, cupular-campanulate, c.

* The previous instalment containing the Notes 155–159 was published in Reinwardtia 10 (1982) 21–26.

4–5 mm long. Filaments and red anthers finely, lax-hairy. Very young female flower c. 2 mm long, bottle-shaped, with almost smooth surface; stigma hardly exserted.

Ecological observations on the specimen: River valley, c. 12 air-km from Nouméa, in creekside forest, c. 400 m alt., tree 16 m, flowers visited by flying insects: *McPherson 2436*, 15 Feb. 1980. On 27 April female flowers were 6 mm long, with stigma hardly protruding: *McPherson 2610*. Of another tree of the same stand fallen cupules were found on 30 April.

References:

FEY, B.S. 1981. Untersuchungen über Bau und Ontogenese der Cupula, Infloreszenzen und Blüten sowie der Embryologie bei Vertretern der Fagaceen und ihre Bedeutung für die Systematik. Inaug. Diss., Zürich: 198 pp., 100 fig.

STEENIS, C.G.G.J. VAN. 1953. Papuan Nothofagus. J. Arn. Arbor. 34: 301–374.

161. NEW OR INTERESTING RECORDS

Compositae

Cotula anthemoides L.

A very widely distributed plant, recorded from South and North Africa, through India to China and Hong Kong. It resembles superficially a *Chrysanthellum* and was sometimes pre-identified as *Chrysanthellum indicum* DC. It is a small weed, with greenish yellow heads. It was introduced and has run wild from the Botanic Gardens, Sibolangit, above Medan.

NORTH SUMATRA. Sibolangit: *Lörzing 8128*, fl. fr. 23-12-1920, 500 m alt.; ditto, *Lörzing 9559*, 2-4-1923.

Porophyllum ruderale (Jacq.) Cass.; Backer & Bakh. f., Fl. Java 2 (1965) 416.

SINGAPORE. St. John's I., an erect, annual weed with yellowish brownish heads, on sandy reclaimed land near the sea, 20-1-1981, *J.F. Maxwell 81-26*.

This American weed was first observed as spontaneously naturalized in the Bogor Botanic Gardens in 1945 where it must have been inadvertently introduced, as it was not mentioned in the 1930 Catalogue. It was later entered in the 1963 Catalogue of the gardens under the synonym name *P. ellipticum* Cass.

After the war it spread also to some other places in West Java, e.g. near Tjiandjur. It seems now on the march towards further distribution.

It is easily spotted by its glaucous leaves and having only 5 involucral bracts 1.5–2 cm long which are provided with linear dark glands.

Wedelia chinensis (Osb.) Merr.

A small, rooting, creeping species, widely dispersed in continental Southeast Asia as far east as Japan, tropical Australia and West Polynesia. Very rare in Malesia. It

was recorded from Luzon by Merrill (En. Philip. 3: 611) as a casual introduction. I found it in 1934 inland as a weed in North Sumatra, but recently it has also been collected on the seashore in East Malaya and this is part of its proper habitat, in which it occurs in Taiwan, the Ryu Kyus and Japan. It could thus be native in Malaya.

PHILIPPINES. Luzon, Merrill l.c.
NORTH SUMATRA. Near Lho Sukun, *van Steenis 6598.*
SINGAPORE. *d'Alleizette*, June 1909 (L).
MALAYA. Trengganu, sandy seashore below rocky sea cliffs, prostrate and rooting, *Sinclair & Kiah SF 40816*, 11-9-55.

Ericaceae (J.F. Veldkamp)

Rhododendron blackii Sleumer, Blumea 21 (1973) 375. – *R. sleumeri* Gilli, Ann. Naturh. Mus. Wien 83 (1980) 435.

Paul Kores and I have compared Gilli's specimen with the original material of *R. blackii* and find it an exact match.

Loranthaceae

Korthalsella papuana Danser, Blumea 3 (1938) 53, fig. 1 f.

WEST IRIAN. Wissel Lake area, Ugamo Hill, near Enarotali, c. 2000 m alt., *Ir. Soehoed Sosrodihardjo 140 A* (L), 4-5-73, parasitic on *Xanthomyrtus arfakensis* (Gibbs) Diels (*no. 140*).

The type and one other collection of this very distinct species came from the mountains of SE. Papua New Guinea and were collected by C.E. Carr, at c. 2700–2900 m altitude.

The new, very welcome, inadvertently made collection is from West Irian. It matches the type very well, the spikes being somewhat further developed and even branched, up to 5 cm long.

Very recently, Dr. Barlow (Brunonia 6, 1983, 49, fig. 39) recorded some 11 collections from N. Queensland, where it is mostly a parasite on Myrtaceae and Lauraceae, at 900–1200 m.

Podostemonaceae

Cladopus nymani H. Möll.; Steen., Fl. Males. I, 4 (1949) 66, fig. 1; Blumea 10 (1960) 141; Hambali, Fl. Mal. Bull. 31 (1978) 2993.

NORTHEAST KALIMANTAN. En route from Sinar Baru to Ruan Ruwan, north of Long Bawan, Krayan District, 115°45′E 4°5′N, at 1150 m, submerged and sterile on a rock in a rapid stream, Pa Raya, especially on the side against the stream, 18-7-81, coll. *M. Okamoto no B* (L, OSAKA).

Hitherto the single species of *Cladopus* in Malesia was known from Thailand, West to East Java and SW. Celebes and the present find fills a distinct gap through the thorough search by Mr. Okamoto in a rheophyte-rich stream in Borneo.

162. NEW RECORDS FROM THE LESSER SUNDA ISLANDS MORE RANGE GAPS FILLED

Formerly I have put on record a number of interesting additions to the flora of the Lesser Sunda Islands (Blumea 15, 1967, 152; 22, 1975, 167 & 168; 24, 1978, 482). Though in a strategic position in Wallacea and being close to the Australian continent their flora was less explored than desirable. They are particularly interesting because they offer a large number of botanical situations, primarily due to the seasonal influence of the Australian climate causing a long dry period, but because of the leeward slopes of the many mountains also offering the development of rain-forest. In addition, there is a great variety in bedrock, with soils derived from volcanic rock but others from shale or limestone. Unfortunately the flora has suffered from human influence, mainly through recurrent fires, and the original flora has to be reconstructed from what can be located in patchy relict stands.

Thanks to the tenacious interest and collecting by Fathers J.A.J. Verheijen, E. Schmutz, J. Loeters and C.W. Kooy in Flores and Timor several families and many genera and species have turned up, some new to science, which had been missed up till now, and which neatly fill plant-geographical gaps.

These new finds add still more weight to the thesis I advanced in my paper on the plant-geography of East Malesia (Bot. J. Linn. Soc. 79, 1979, 143) that the Lesser Sunda Islands flora is integrated in that of the whole of Malesia.

Burmanniaceae

Gymnosiphon

Gymnosiphon was unknown from the Lesser Sunda Islands. It is a rain-forest genus. It is now also found in Flores: *Schmutz 4802.*

Cyperaceae

Mapania

The genus *Mapania* ranges throughout Malesia, but was not recorded from Central and East Java and the Lesser Sunda Islands. Compare Kern, Fl. Males. I, 7: 468, map. Two species, with quite different ranges, turned up to occur in the rain-forest of West Flores.

Mapania cuspidata (Miq.) Uittien, throughout the generic range. Kern l.c. expressly stated that it lacked in the Lesser Sunda Islands. Flores: *Schmutz 4816.*

Mapania macrocephala (Gaud.) K.Sch. The western border of its range ran from the Philippines to the Central Moluccas and New Guinea. Kern, Fl. Males. I, 7: 471, map. Locality gregarious in rain-forest in West Flores: *Schmutz 4913.*

Ferns (G.J. de Joncheere)

Asplenium exiguum Bedd.; C.W. Hope, J. Bombay Nat. Hist. Soc. 13 (1901) 663; Tardieu-Blot, Fl. Gén. Indo-Chine 7 (1940) 234; Copeland, Fern Fl. Philip. 3 (1960) 442.

North America and Mexico, Indian Peninsula (Nilgiris, type), Indochina, Philippines (Luzon, 1500 m) and the Lesser Sunda Islands: West Flores: *Schmutz 2350*; S. Central Timor: *C.W. Kooy 526*, at 750 m alt.

The occurrence of this rare fern in the Lesser Sunda Islands is worthy to put on record. Its distribution fits with the pattern 5 of which Van Steenis has given examples (Bot. J. Linn. Soc. 79, 1979, 125).

Flacourtiaceae

Ryparosa javanica (Bl.) Kurz

This species ranges from Thailand to New Guinea, in the Lesser Sunda Islands hitherto only known from Bali; now also from Flores: *Schmutz 4135, 4818.*

Gramineae (J.F. Veldkamp)

Microstegium spectabile (Trin.) A.Camus

Known in Malesia from SE. Borneo, the Philippines, Moluccas (Ternate) and New Guinea, also in West Flores: Tewa Sano, in forest, 800 m alt., *Schmutz 5198.*

Icacinaceae (H. Sleumer)

Gonocaryum cf. macrophyllum (Bl.) Sleumer

The genus ranges from Burma to New Guinea, but does not occur in Java. In Timor the wide-ranging *G. littorale* (Bl.) Sleumer has been found. This second record from the Lesser Sunda Islands from Flores: *Schmutz 4757*, is a different species which grows in Sumatra and Borneo; only sterile material is available.

Sarcostigma

This genus was only known to occur from the Western Ghats (Deccan Peninsula) eastwards through SE. Asia and Malesia as far as Wallace's Line: Java, Borneo, Philippines.

S. paniculata Pierre: Indochina, Malaya, Borneo and Philippines; Flores: *Schmutz 4818a.*

Stemonurus

The genus occurs from Ceylon to the Solomons eastwards, but was not known from the Moluccas, Lesser Sunda Islands and Central–East Java.

S. scorpioides Becc. has now been found in Flores: *Schmutz 3325.*

Myoporaceae

Myoporum

The genus was hitherto known in Malesia from New Guinea and the Tenimber Islands (S. Moluccas).

M. papuanum Krzl. ranges from Australia to New Guinea and the Tenimber I., now also known from Timor: *C. W. Kooy 1271*. A grassland shrub of seasonal savannah.

Orchidaceae

Corybas spp.

At least two species of *Corybas* have been found in Flores: *Schmutz 4481, 4575.* Material was entrusted to Dr. Dransfield for naming.

Disperis javanica J.J.S.

Hitherto endemic in Central and East Java, now found in several places in West Flores in rain-forest and adjoining grassland: *Schmutz 4333, 4593, 4727.*

Phalaenopsis micholitzii Rolfe

Hitherto only known from the Philippines, now also found in West Flores, an unexpected addition to Wallacean ranges: *Schmutz 4673, 4716.*

Stigmatodactylus cf. **javanicus** Schltr. & J.J.S.

This very tiny orchid was only known from mountain rain-forest in Java, twice found. The genus is rare in Malesia and was unknown from the Lesser Sunda Islands; now in Flores: *Schmutz 4795.*

Triuridaceae

No representative of this family was as yet known from the Lesser Sunda Islands, although the family is known from all other island groups.

Sciaphila arfakiana Becc. occurs from Malaya to Micronesia and West Polynesia; rain-forest in Flores: *Schmutz 3655, 4163.*

163. PLANT FAMILY RATIOS IN LOWLAND FOREST OF SUMATRA

The first who gave attention to the ratio of a certain specified taxon in Malesian lowland forest vegetation was Corner, who gave a discussion and figures on *Ficus*. He computed this from the numbers of *Ficus* occurring in collections; cf. Identification Lists of Malesian Specimens no 37 (1970) 537–539. The averages he found ran from about 1–2%, showing the importance of *Ficus* in the vegetation.

One can follow a similar procedure for collecting series and compute the degree of abundance of families.

In a few leisure hours I have scanned the first 3600 collecting numbers of the number list bb (= Bossen Buitengewesten, meaning Forests Outer Provinces, that is, outside Java) series, made by the Forest Research Station at Bogor, Java, for a number of families. All these collections are derived from strip surveys in the hill and lowland forest of Sumatra. This yielded the following figures:

Myrtaceae 246 = 7%	Leguminosae 100 = 3%
Dipterocarpaceae 180 = 5%	Sapotaceae 101 = 3%
Euphorbiaceae 155 = 4.3%	Meliaceae 83 = 2.3%
Lauraceae 142 = 4%	Fagaceae 62 = 1.7%
Guttiferae 107 = 3%	Annonaceae 58 = 1.6%

164. RECORDS FROM THE LATIMODJONG MTS, CENTRAL CELEBES (J.F. Veldkamp)

Ehrharta diplax F.v.M. var. **giulianettii** (Stapf) L.P.M. Willemse (Gramineae)

Willemse (Blumea 28, 1982, 181) distinguished two taxa of what formerly was known as *Microlaena* R. Br. and now *Ehrharta* Thunb. in Malesia: *M. giulianettii* Stapf [= *E. diplax* F.v.M. var. *giulianettii* (Stapf) Willemse] and *M. stipoides* (Labill.) R. Br. [= *E. stipoides* Labill.]. The first was endemic to the high mountains of New Guinea growing between 2800 and 3500 m, the second one is more widely distributed in Malesia and Australia. Neither was known to occur on Celebes, whereby the identity of *M. ciliativertex* Ohwi described on *Kjellberg 3699* from subalpine grasslands at 2800 m on the Mt Poka Pindjang remained a puzzle, as the holotype in BO is missing. Although specimens annotated by Ohwi in BO show that he knew both the other species, it was not clear from his description how this new one differed, even though he compared it with *M. stipoides.*

Now, through the kind help of Dr. K. Bremer, Stockholm, an isotype has been obtained, which showed that Ohwi's species is in fact identical with *E. diplax* var. *giulianettii* and thus not so close to *E. stipoides* at all.

This taxon and several others (see below) emphasize the floristic affinity between the Latimodjong mountains of Celebes and those of New Guinea. As long-distance dispersal is to be ruled out, they suggest that they arrived there by rafting with the continental drift on pieces of Gondwanaland (see for the illustrative maps by Audley-Charles in Whitmore, Wallace's line and plate tectonics, 1981), especially on that what is now East Celebes. Moreover, they indicate the continuous presence of fairly high mountains on these 'rafts' offering the conditions which these high-mountain and subalpine species need to survive even taking into account the great climatic fluctuations of the Quaternary. At least in this period the vegetation belts shifted downwards considerably (the treeline going down as much as 1500 m in New Guinea), which may well have facilitated migration. More important, however, must have been the presence of high elevations during periods of maximum upward shifts of the belts, for these guaranteed the very survival of the high altitude flora.

Astelia papuana Skottsb. (Liliaceae)

In early February 1981 a small party climbed Mt Rante Mario. One of the members was J.M.B. Smith, Armidale (New South Wales), who made a collection of 65 specimens, now in L, containing a number of new records, and perhaps new species (*Cotula*, no 642 = Eyma 943, *Myriactis* (?), no 626 = Eyma 960, *Anthoxanthum*, no 667, *Elatostema*, no 673, *Hedyotis*, no 631). One interesting find was *Astelia papuana*, a rather conspicuous plant because of its hummock-like habit, silvery white undersurfaces of the leaves and its orange to bright red berries. Nevertheless it had not been observed before. Until recently it was considered an endemic of New Guinea, where it occurs between 2850 and 4350 m in wet to swampy places. Van Royen (Alp. Fl. New Guinea 2, 1980, 37) has now equated it with the Australian *A. alpina* R. Br.

Gentiana polytrichoides v. Royen (Gentianaceae)

This species was also only known from a few collections from New Guinea and is represented by *Smith 665*.

Triplostegia glandulifera Wall. ex DC. (Dipsacaceae)

Van Steenis (Fl. Males. I, 4, 1951, 290) mentioned that Eyma had inadvertently collected a single specimen of what most likely was this species on Mt Kambuno, but that it unfortunately had been lost. *Smith 683* is a good specimen of this Laurasian species.

165. CERASTIUM IN NEW GUINEA (CARYOPHYLLACEAE) (J.F. Veldkamp)

The late Dr. W. Möschl (Blumea 24, 1978, 157) gave a discussion and census on the species. He recognized two indigenous ones, the variable endemic *C. papuanum* Mattf. em. Möschl and the Indo-Malesian *C. indicum* W. & A.

He mentioned also two cosmopolitan, introduced ones, viz. *C. glomeratum* Thuill. and *C. holosteoides* Fries. The latter was represented by an incomplete specimen. Of the latter species, the specimen at Lae (*NGF 15048*) was collected by Van Royen on Edie Creek road; I myself collected it on top of Mt Kaindi (2250 m) around the repeater station where it was quite common together with other aliens as *Sisyrinchium micranthum* Cav. and *Poa annua* L. It is also found introduced in Java.

The correct name for *C. holosteoides* Fries is *C. fontanum* Baumg. subsp. *glabrescens* (G.F.W. Meyer) Salman et al. (Salman, Van Ommering & De Voogd, Gorteria 8, 1977, 168).

166. TYPIFICATION AND IDENTIFICATION OF DAVALLIA MOLUCCANA L. (DAVALLIACEAE) (G.J. de Joncheere)

In his revision of *Tapeinidium* Kramer (Blumea 15, 1967, 549; Fl. Males. II, 1, 1971, 187) accepted the name *T. amboinense* (Hook.) C.Chr. based on *Davallia*

amboynensis Hook., Sp. Fil. 1 (1846) 178 (lectotype *A. Smith s.n.* from Amboyna, in K).

Unfortunately Kuhn (Ann. Mus. Bot. Lugd.-Bat. 4, 1869, 279) published in the synonymy under his transfer to *Lindsaya amboynensis* (Hook.) Mett. ex Kuhn *Davallia moluccana* Roxb. ex Griff. (Calc. J. Nat. Hist. 4, 1844, 516) which is a later homonym of *Davallia moluccana* Bl. and thus an illegitimate name, and furthermore also quoted '*D. moluccensis* Bl. in herb. Paris', omitting any mention of the published *Davallia moluccana* Bl. (Enum. 1828, 237).

Here the confusion started and this became more complicated because of a sheet in L (908.323-1288) which hailed from West Java and which was annotated by Blume as '*Davallia moluccana* ??', and was later named by Mettenius '*Saccoloma moluccanum* M.', but was never cited in the literature. In fact this specimen is not a *Tapeinidium* but belongs to *Saccoloma*, as Mettenius stated; it is now relegated to *Orthiopteris campylura* (Kunze) Copel. It makes the impression that Mettenius derived the epithet *'moluccanum'* from *Davallia moluccana* Bl.

For typification it is irrelevant, as Blume and Hooker based their species on specimens from the Moluccas, but it may have misled Kramer who stated (l.c. 549) that he examined at L the type of *Davallia moluccana* Bl., which he said was a *Saccoloma.*

In fact the holotype of specimens of *Davallia moluccana* Bl. are two sheets at L (908.323-902 & 908.332-939) which were collected by Reinwardt in Amboyna, labelled by him '1697 *Davallia tetragona* R.', the first of which carrying a label written by Blume '*Davallia moluccensis* nob.' Obviously Blume changed this to *Davallia 'moluccana'* in his Enumeratio (1828).

There seems no doubt that these two specimens belonged to the collection on which Blume based *Davallia moluccana*; in the description he mentioned that the lobes of the pinnae are blunt and entire, and also that the stipe is 'tetraquetro', a term memorizing Reinwardt's MS epithet *'tetragona'*.

It can hence be concluded that the species must be called *Tapeinidium moluccanum* (Bl. 1828) C.Chr., antedating the name *T. amboynense* (Hook. 1846) C.Chr. We are thus in complete agreement with C. Christensen (Gard. Bull. Str. Settl. 4, 1929, 399) who had earlier reached the same conclusion.

167. REDUCTION OF CAESALPINIA ROBUSTA FROM QUEENSLAND (LEGUMINOSAE)

(T. A. Hattink)

In the course of my revision of *Caesalpinia* of Malesia I have not touched on the identifications of Australian species.

In 1933 C.T. White described a new species of *Mezoneurum* from Atherton Table Land, *M. robustum*; the type material is poor and did not carry fruit.

Recently better material has been collected with fruit, in the Atherton District, which matches White's description.

This material is also an exact match for a sheet collected in Papua New Guinea by Mr. Coode (*NGF 32592*) which I referred to *C. major*. On this I commented (Rein-

wardtia 9, 1974, 41) that it 'differs slightly from the usual form by being pubescent in all parts except the upper side of the leaflets, many glandular hairs on the pedicels and calyx, and more spines.' I added that a similar variation was found in *C. bonduc*, where in New Guinea also specimens occur which are very pubescent and are more spiny, which had been described as *C. sogerensis* Baker.

In my opinion the Papua and Atherton specimens represent merely a special form of *C. major*, and consequently I reduce *C. robusta.*

Caesalpinia major (Medik.) Dandy & Exell

C. major (Medik.) Dandy & Exell, J. Bot. 76 (1938) 180; Hattink, Reinwardtia 9 (1974) 39. *Mezoneurum robustum* C.T. White, Contr. Arn. Arbor. 4 (1933) 43. – *C. robusta* (C.T. White) Pedley, Austrobaileya 1 (1977) 34, syn. nov.

QUEENSLAND. Atherton Table Land, Portion 92, Malanda, *G.C. Stocker 1522* (Atherton Herb.), thorny vine to upper canopy in rain-forest regrowth, 760 m alt., flowers yellow, seeds on ground red and white speckled, ovules 2.