

SERIANTHES Benth.**(Leguminosae-Mimosoideae-Ingeae)**

F. R. FOSBERG*

INTRODUCTION

The genus *Serianthes* was erected by Benthham to accomodate plants which Wallich had called *Inga grandiflora*, from Singapore, and those which Bertero had called *Acacia myriadenia*, from Tahiti. It has been accepted from the first, as it is amply distinct from *Acacia* and reasonably so from *Inga*. though it is usually placed in the tribe *Ingeae*.

Serianthes is widespread in the southwest Pacific, usually, though not always, occurring on islands, frequently on calcareous or serpentine rocks or their derived soils. It is seldom abundant, though in places common. In habit it varies from a dwarf tree or large shrub to a forest giant. It is reported to be an excellent timber tree, but seems nowhere to be abundant enough to be important commercially.

Since Benthham's original description in 1844, eleven additional species and one variety have been ascribed to it in addition to the original *S. grandiflora*. Three of these do not belong in *Serianthes*. Most of the specimens in herbaria, excepting those called *S. grandiflora*, have been misidentified, usually being placed in *S. myriadenia*.

Although I first saw this genus growing and collected it in Raivavae and Rurutu in 1934, my interest in it was aroused by failure, in 1950, to find a satisfactory disposition for specimens collected in Palau, similar to those that Kanehira had referred to *S. grandiflora*, which they clearly were not. The more I tried to make sense of the herbarium material available in a number of herbaria the more frustrating the problem became. Notes were accumulated in a most haphazard and unsystematic manner, as I had no intention of doing more than identifying my Micronesian material. Finally it became evident that over half of the entities discernible in the material examined were undescribed, and I felt a certain obligation to work up at least a synopsis of the genus.

Two factors, other than lack of time, have made this task drag out to an inordinate length of time. One is the fact that several of the entities described lack either flowers or fruit. The other is that I have hesitated

* Botanist, U.S. Geological Survey, Washington, D.C., U.S.A.

about borrowing material, because, as with so many leguminous genera, specimens shatter very easily and may be seriously damaged in the mail, even though properly packed. After this was realized I did not ask for more loans and waited until I could visit the herbaria containing the essential material. I have been able to see most of the collections available, but still the material extant is far from that necessary for anything approaching a monograph. The present admittedly inadequate treatment is offered as an aid to more satisfactory identification of specimens and in the hope that it will stimulate more careful and adequate collecting and especially the gathering of field data on habit, flower color, range of variation of all characters on the same tree and within local populations, and on the habitats of the various entities, especially in places like New Caledonia, New Hebrides, and Fiji, which possess more than one species or variety. The entities described are in some cases by no means homogeneous, but it is felt that most of them represent actual populations of closely related individuals.

HISTORY:

Bentham described the genus in 1844, including only one species, *S. grandiflora*, but included in it Bertero's *Acacia myriadenia* as a synonym. He based *S. grandiflora* on *Inga grandiflora* Wall, which seems to be a *nomen nudum*.

Planchon immediately pointed out (probably in a letter to Bentham) that *Acacia myriadenia* was a distinct species, which Bentham acknowledged in 1846, publishing *Serianthes myriadenia* Planch. Gray added *S. vitiensis* in 1854. In 1875 Bentham added two further species, *S. tenuiflora* and *S. calycina*. In 1913 Guillaumin reviewed the genus briefly and added *S. germainii* and *S. petitiana*. Harms described *S. ledermannii*, which seems to belong in *Albizia*, in 1917 and Merrill *S. nelsonii* in 1919. Harms, in 1930, described *S. inopinata*, from a plant cultivated in the Rio de Janeiro Botanic Garden, but his specimen does not belong in *Serianthes*. In 1935 Brown described *S. myriadenia* var. *rurutuensis*. Merrill and Perry, in 1942, transferred *Albizia minahassae* Koord. to *Serianthes*, seriously weakening the distinction between *Serianthes* and *Albizia*. In 1953, Kostermans described *S. gigalobium* which he now refers to *Sympetalandra borneensis*. Finally, in 1959, I proposed *S. dilmyi* to replace the illegitimate name *S. grandiflora* Benth.

SYSTEMATIC TREATMENT

Serianthes Benth. in Hooker's London Jour. Bot. 225—226, 1844.

There is no generic synonym, so far as I know.

DESCRIPTION:

Large to small trees, rarely shrubs, twigs usually warty with crowded leaf scars, young growth usually rusty tomentulose; leaves bipinnately compound, with usually many pairs of pinnae and leaflets, the rachis with disk-like circular or oval more or less elevated glands, leaflets sessile, usually somewhat unequal at base, oblong, apex rounded to emarginate, rarely somewhat pointed; stipules obsolete; inflorescence a stout sparsely branched axillary corymbiform panicle, generally somewhat brown tomentose, with caducous scale-like bracts at the nodes and articulations, large concave ones subtending the ultimate glomerules, triads, diads or monads of sessile or almost sessile flowers, the whole panicle thickening greatly and somewhat elongating in age; calyx cylindrical to cup-shaped, funnelliform, or campanulate, thick, with short lobes, calyx in some species circumcissile at base and caducous, also tardily splitting longitudinally; corolla of five equal coriaceous petals, the claws coherent into a tube, weakly so above, the lobes oblong, reflexed at maturity, densely sericeous or tomentulose outside, glabrous within; stamens many, filaments fused in their lower, included portions, usually about twice the length of the corolla, long exerted, usually colored, anthers minute; style elongate, ovary glabrous; pod thick, woody, indehiscent, usually densely brown tomentose or tomentulose, variously cross veined, margin often slightly to notably thickened, valves firmly coherent between seeds; seeds oblong, oval, or elliptic, hard, glossy, compressed, arranged transversely in pod.

RELATIONSHIPS:

Within the tribe Ingeae of the Mimosoideae *Serianthes* is very close to both *Wallaceodendron* and *Albizia*.

Wallaceodendron has flowers almost identical with those of *Serianthes* and fruits similar in consistency and appearance so the possibility of combining the two was seriously entertained. However, the racemose inflorescence and the different leaves and fruit cause me to maintain these as separate genera. The fruit is tardily dehiscent with parchment-like endocarp separating into transverse rectangular segments which (acc. Kostermans, in litt., 1959) are dispersed with included seeds from the dehiscent pods which remain on the tree. Actually, *Wallaceodendron* rather weakens the distinction between *Serianthes* and *Albizia*, as its racemose inflorescence and dehiscence are closer to those of *Albizia*, while its flowers and the consistency and appearance of the fruit are very close to those of *Serianthes*.

Serianthes differs from *Albizia* in having thick woody indehiscent pods and an inflorescence which is a thick bracteate panicle with corymbosely arranged ultimate groups of sessile or subsessile flowers, enclosed by concave bracts. *Albizia* has a slender panicle of heads or spikes. The rather broad bracts subtending the budding heads of *Albizia falcata* (L.) Backer,

as shown by *Brass* 8359 (BO) show a slight resemblance to those of *Serianthes*. The usually larger, thick-textured flowers, densely sericeous or tomentulose on the outside, are also very distinct in appearance from those of *Albizia*.

Albizia minahassae Koord. (*Serianthes minahassae* (Koord.) Merr., *Serianthes ledermannii* Harms) stands in a rather intermediate position between *Albizia* and *Serianthes*. One may appropriately quote from Kosterman's discussion of the generic situation in the Ingeae (Org. Sci. Res. Indonesia, Bull. 20: 4, 1954), "How difficult matters are may be demonstrated with *Albizia minahassae* Koorders, which has been transferred to *Serianthes* by Merrill. The ripe pod is dehiscent and although it is slightly thicker and more woody than that of *Albizia* species, the former character excludes this species definitely from *Serianthes*." There is now some question as to whether the valves of the pods of *A. minahassae* ultimately separate, though the margins certainly do. Kostermans now regards the pods of this species as indehiscent. In addition, the definitely spicate flowers of *A. minahassae* seem to indicate that it should better go in *Albizia*.

In *Albizia* the flowers are usually sessile, but in *A. lebbeck* (L.) Benth. and *A. pedicellata* Backer they may be somewhat pedicellate, further weakening the distinction between *Albizia* and *Wallaceodendron*.

There is no doubt that these genera are weak and that, unless different and more fundamental distinctions are discovered, a conservative botanist treating the tribe as a whole might combine them. This paper, considering in any detail only *Serianthes*, does not seem the place to do this. Such facts as are evident to me make it possible to retain the three genera tentatively, but without strong conviction that they will ultimately stand. Therefore, *Serianthes* may for the present be regarded as a genus divergent from *Albizia* in the features given above, probably derivative from it, but possibly of ancient, coordinate derivation from a common ingoid ancestral stock. The peculiar fruit structure of *Wallaceodendron* sets it apart somewhat satisfactorily, but it must be regarded as intermediate in many respects.

DISTRIBUTION:

The genus is found almost exclusively on islands, excepting only the occurrence of *S. dilmyi* on the Malay Peninsula. The range extends from the Malay Peninsula through the Malay Archipelago and the Philippines eastward in the Pacific to the Marianas, Palau, Yap, New Guinea, the Solomon Islands, New Hebrides, New Caledonia, Fiji, Tonga, to the Society Islands, Austral Islands, and the Marquesas. The main center of diversity seems to be Melanesia, especially New Caledonia.

TAXONOMY:

Little can be said at this stage about the relationships between the species of *Serianthes*. Most of them are known from so little material that the relative constancy of even the characters used to distinguish them is uncertain and it is not sure in some cases that flowering and fruiting material are correctly associated. Although three species, *S. dilmyi*, *S. kanehirae*, and *S. robinsonii* seem closely related, other such groups are more vague and probably nothing would be gained at this time from establishing them as poorly defined sections. The arrangement adopted here is mostly arbitrary.

Almost all features in this genus seem to be more than usually variable. Contrasts in the key are mostly, of necessity, between the main ranges of variation. Sterile material is usually much more luxuriant than fertile, and accounts for some of the more extreme figures in the descriptions. Leaflet size, shape, and pubescence were found to be useful in distinguishing entities. The direction of the midrib in relation to the margins, actually a function of leaf shape, is very helpful. The distribution of the disk-like glands on the petiole, rachis, and rachillae, though given much attention in all previous work, and though recorded for all species described here, seems to be completely inconstant, even between leaves on the same specimen. These glands have, therefore, not been mentioned in the descriptions of species and varieties, as it is felt that to mention their distribution when only a leaf or two were available for study might be more misleading than useful. It would be of great interest to make a special field study of these foliar glands in a locality where many trees were available, to determine if there is any order underlying the occurrence and distribution of these structures, or if possibly they result from some external cause. Within certain limits the size and degree of ramification of the inflorescence help in classification. There seems, however, to be considerable enlargement of the panicle between flowering and fruiting stages. The size and shape of the calyx, too, is variable, but since calyces are frequently available, and since the range of variation is reasonably known for many species, these features have been useful. Measurements of length of calyx indicate total length, including lobes. Likewise, with the corollas, measurements are of total length, including the lobes which become patent or recurved with age. There are probably significant variations in the shape of the corolla lobes, but these are not too satisfactorily evident in dried material and may change with degree of maturity. The lower limits of length as given may be inaccurate due to measurement of immature flowers, likewise with the occasional figures given for degree of exertion of the corolla "tube". The fruits provide some of the most useful characters, in size, shape, degree

of thickening of margins, and in the type of venation on the sides. However, the usefulness of these characters is lessened by the fact that not all fruits available are fully mature and that it is difficult to be sure if they are mature. Usually a specimen bears at most one fruit and one hesitates to open it up to determine if the seeds are fully developed. Seed characters would doubtless be very useful, but mature seeds have seldom been examined, for the same reason.

Even after handling a large amount of material I must admit having developed little feeling as to relative importance of any of these characters in indicating relationship between species. No clear pattern of evolution has become evident. Obviously varying degrees of isolation have permitted differentiation to varying degrees. No evidence has appeared as to means or effectiveness of dispersal between islands. Floating and hurricanes are suggested, but with no observational basis. The genus would provide some support for those who favor the notion of former continental connections or land bridges in the Pacific, as the apparent pattern could have resulted from breaking up of a former variable widespread species with genetic drift producing the observed differentiation. This pattern could, of course, equally well result from sporadic oversea dispersal.

From the material at hand it seems reasonable to distinguish 13 species, of which one is divided into 2 varieties, one into 3, and one into 6. These may usually be separated by the following key, though it is realized that a key calling for both flowers and fruits in such a genus may be of little use for some material.

Most of the species must be regarded as weak and some may fall when more abundant material is available. They seem as good as many of those recognized in *Albizia*. They will at least serve to bring like material together so that a better idea of the pattern of variation may be gained than from a heterogeneous mass of specimens thrown into two or three broad species which would be even more difficult to distinguish than are the present narrower ones.

All specimens examined are cited under the appropriate descriptions. However, it is possible that some studied some years ago, before an adequate idea had been formed of the species, may be wrongly placed. Herbarium abbreviations used are those in the Index Herbarium of Lanjouw and Stafleu, 1952, except that the abbreviation Fo indicates specimens still in my own possession which have not yet been distributed to herbaria. I appreciate very much the courtesy of the authorities of these herbaria in permitting me to study this material.

KEY TO SPECIES AND VARIETIES

- A. Leaflets averaging less than 8 mm. long and less than 25 mm. wide 1.
 1. Calyx tube narrowly cylindrical, 3 mm. or less wide *S. nelsonii*.
 1. Calyx tube broadly funnelform, 12 mm. or more wide at top *S. petitiiana*.
- A. Leaflets averaging 10 mm. or more long, 3 mm. or more wide 2.
 2. Midvein of leaflets appearing to be diagonal across at least middle third of leaflet rather than parallel with margins, calyx circumcissile at base 3.
 3. Midrib strongly diagonal, across more than the middle third of leaflet, calyx strongly dilated upward, campanulate, corolla more than 30 mm. long
 S. dilmyi.
 3. Midrib diagonal only across about the middle third of the leaflet, calyx generally 30 mm. or less long 4.
 4. Fruit over 6 cm. wide, corolla about 30 mm. long *S. robinsonii*.
 4. Fruit less than 6 cm. wide, corolla 20 cm. or less long (*S. kanehirae*) 5.
 5. Leaf rachis subglabrous var. *hooglandii*.
 5. Leaf rachis tomentulose or pilosulose 6.
 6. Leaf rachis thinly brown tomentulose var. *kanehirae*.
 6. Leaf rachis sparsely pilosulose var. *yapetisis*.
2. Midvein of leaflet parallel with sides of leaflet or only very slightly diagonal, usually nearer upper margin 7.
 7. Pod relatively thin, 5.5 cm. wide, veins few (about 6) but prominent, running from upper margin, branching; leaflets almost glabrous, about half as wide as long *S. vitiensis*.
 7. Pod with veins much more numerous and not so prominent, other characters various 8.
 8. Calyx 2—6 mm. long 9.
 9. Calyx 2—3 mm. long, 4 mm. wide *S. tenuiflora*.
 9. Calyx 4—6 mm. long 10.
 10. Leaf rachis mostly less than 10 cm. long, pinnae 3—5 pairs
 S. gennainii.
 10. Leaf rachis mostly over 10 cm., pinnae more than 5 pairs. 11.
 11. Leaflets glabrous or almost so, about 8—11 mm. long, 2—3 mm. wide; corolla less than 25 mm. long *S. ebudarum*.
 11. Leaflets sparsely sericeous-tomentulose beneath, mostly 10—25 mm. long, 5—11 mm. wide; corolla 25 or more mm. long
 S. myriadenia.
8. Calyx averaging 8 or more (rarely as little as 6) mm. long 12.
 12. Calyx about 15 mm. long *S. calycina*.
 12. Calyx 6—14 mm. long 13.
 13. Pod 5—7 cm. wide; conspicuously heavy and woody, margin notably thickened *S. sachetae*.
 13. Pod 3—4.5 cm. wide, margins usually not conspicuously thickened (*S. melanesica*) 14.
 14. Leaf rachis 17—25 cm. long 15.
 15. Margins of pod conspicuously thickened, var. *samoensis*.
 15. Margins only slightly thickened 16.
 16. Calyx somewhat campanulate, 10 mm. wide at top; pod 4—4.5 cm. wide var. *lifouensis*.

14. Leaf rachis 16 cm. long or less. 17.
 17. Calyx broadly turbinate or campanulate, 8–9 mm. wide
 and long; leaflets up to 9 mm. long, 3.5 mm. wide . .
 var. *macdanielsii*.
 17. Calyx narrow, not strongly dilated, cylindric to campanulate,
 up to 7 mm. across. 18.
 18. Calyx usually about half as wide as long, tubular;
 leaflets usually pilosulous or minutely sericeous on
 both surfaces. var. *yunekeri*.
 18. Calyx usually well over half as wide as long, at
 least at top, cupshaped to campanulate; leaflets
 usually glabrous or only slightly sericeous above .
 var. *melanesica*.

SYSTEMATIC ARRANGEMENT

Scrianthes dilmyi Fosberg, Taxon 8: 65, 1959.

Inga grandiflora Wallich, Cat. 5285, 1828, *nom. mid.* (MOW Ducke 1922).

Serianthes grandiflora Benth., Hook. Lond. Jour. Bot. 3: 225, 1844 (*nom illegit.*).

Young parts minutely ferruginous-tomentulose; leaves with rachis slightly tomentulose, pinnae 6–8 pairs, leaflets 12–20 pairs, curved-oblong, strongly oblique at base, the midrib appearing to run diagonally across the blade, blade (14)—17—20 mm. long, (6)—7—8 mm. wide, glabrous except sometimes at extreme base; inflorescence notably paniculate, 10–25 cm. long; calyx narrowly campanulate, 15 mm. long, 10–12 mm. wide at top, lobes ovate, circumcissile at base, rarely splitting down the side, corolla 32–38 mm. long, tomentose, adherent part included to slightly exserted, "grayish yellow" (*Kostermans* 2783); legume oblong, up to 18 cm. long, 4–6 cm. wide, cross-reticulate, margins slightly thickened; seeds transversely oblong.

The name *Serianthes grandiflora*, by which this species has commonly been known, is unfortunately illegitimate under Article 70(1) of the International Code. The name was based on *Inga grandiflora* Wall., a *nomen nudum*, and the epithet from the available earlier name, *Acacia myriadenia* Bert, ex Guillem. cited in synonymy, was not taken up, rendering the binomial *Serianthes grandiflora* superfluous when published. The fact that Bertero's name went with its type when that was removed from the species under discussion does not change the situation except to leave this species without an available name. This was rectified in Taxon (8: 65, 1959). It gives me great pleasure to dedicate it to Mr. Anwari Dilmy, the first Dyak botanist, now Keeper of the Bogor Herbarium.

This species occurs from the Philippines through Malaysia to Malaya and New Guinea. The easternmost collection, *Womersley* and *Gray 861 i*, has rather small flowers.

TYPE LOCALITY: Singapore.

SPECIMENS EXAMINED: PHILIPPINE IS.: s.l. *aiming* 1592 (K, P, NY, SING, A). Luzon: Prov. Batangas, *Cuming* 1592 (K); Prov. Tayabas, *Vidal* 2697 (K). Mindoro, *Cuming* 1592 (BM). Paragua I., *Vidal* 2698 (K). Palawan I., s.l. *Fenix* 1166 (US, Z); mouth of Molinao River, *Curran* 3800 (K, P). Tawitawi, Sulu Prov., *Ramos & Edaño* U336 (US, P, NY, SING, BO). Mindanao I.: Prov. Surigao, *Ponce* 22829 (US, BO); Distr. of Lanao, Negros Occidental, *Everett* 5616 (US); *Agwma* 23321 (US, NY); Dinagat I., *Ahem* 447 (or 147) (US); U79 (BO); Panay I.: Prov. Capiz, *Cortes & Knapp* 23939 (P); Distr. Zamboanga, *Foxworthy, Demesa & Villamil* 13298 (P). (The *Cuming* 1592 sheet at Harvard bears the pencilled note "Mindoro! EDM.")

MALAY PENINSULA: s.l. *Griffith s.n.* (K, P); Johore: Tanjong Sedili Kenhil, Pasir Saruang, *Corner* 28089 (SING, K). Malacca, *Maingay* 2391 (K), *Griffith s.n.* (K, P), *Kurz s.n.* (BO); Selangor: Sendang Exp. Station, *Brown* in 1939 (SING).

Singapore: *Wallich Cat. Kerb.* 5285 (K, type); Tanjong Behala Kuda, Pulau Pawai, *Sinclair* 38902 (SING); Pulau Serangoon, *Sinclair* 38956 (SING); Bukit Timah (?) *Ridley* (K).

MALAY ARCHIPELAGO: Sumatra: Enggano, Poeloe Merbau, *Lutjeharnis* 4652 (K, US, BISH, P, NY, SING, BO), 5161 (BO); Poeloe Sibisjie Lampong, *Teysmann* 4472, H.B. (BO); Riouw, *Steup s.n.* in 1946 (BO); Krakatau Group, Verlaten I., *van Leeuwen-Reynvaan* 3761 (BO). Java: Pallae, Tanjian, *Teysmann s.n.* (K); Poeloe Sangian (Dwars in de Weg) [in Sunda Strait], *Teijsmann* 297 A H.H.B. (BO); Noordoost Eil. [in Sunda Strait], *Penjalian s.n.* in 1906 (BO); Buitenzorg (cult.) s. *coll.*, s.n. (K); Bogor, Botanical Garden, cult, (seeds from *Jaheri* 2211) (BO); "cult, in Hort. Bog.", s. *coll.*, s.n. (BO). Celebes: Manado, Gorontalo, Pantei Monano, *Uno U* (BO); Manado, Poso, s. *coll.* b.b. 28,735 (BO); Manado, Poso, Kalora, *Tangkilisan* 17 (BO); Tanjoeng Sapiri, *Kjellberg* 2453 (BO). Moluccas: Key Is., *Warburg* 20319 (BM), *Jaheri s.n.* (BO), *Jaheri* 322 (BO), *Toewal* 2211 (BO); Soela Is., Mangola I., Lampaoe (N. Mangoli), b.b. 29890 (BO, SING); Misool I., Salafen, *Malessy* 8 (BO); Salafen, Waigawa, s. *coll.* b.b. 14,380 (BO); Tengah I., w. coast of Boeroe, *Fairchild* 299 (US); Rawak, *Gaudichaud s.n.* (P); Ambon, *Koorders & Oldenburg* 29484 (K); Aru Is., Wokam, *Beccari s.n.* in 1873 (K).

New Guinea: Sorong, *Beccari s.n.* in 1872 (K, A); Sorong, s. *coll.* b.b. 14,380 (BO); Jobie Is., *Barclay* 3585 (BM); Waren, 60 mi. s. of Manokwari, *Kanehira & Hatusima* 13188 (BO, T, A); Warnapi R., Dessa, seacoast s. of Manokwari, *Kostermans* 2783 (BO, SING, A); Normanby Island, Waikaiuna Bay, 50 ft., *Womersley and Gray* 8614 (A).

Serianthes robinsonii Fosberg, *sp. nov.*

Costa foliolae vix obliqua; calyx 11—12 mm. alta circumcissa; corolla 30 mm. longa; legumen valde lignosum, 7—8 cm. latum.

This species is close to *S. dilmyi* but differs in the smaller leaflets, up to 12—13 mm. long and 4.5—6 mm. wide, with the midribs only slightly diagonal, the upper margin scarcely curved; calyx (8)—11—12 mm. high, not much dilated upward, 10—13 mm. wide at top, circumcissile at base, tending to split down one side and become caducous; fruit very woody, 15—34—(38) cm. long, (5)—7—(8) cm. wide, margins thickened, much

like that of *S. sachetae*, venation prominent, widely spaced, scarcely anastomosing; seed oblong, transverse, 2 cm. long, 1 cm wide, ends rounded.

This plant may not be sufficiently distinct from *S. dilmyi*, but its leaves do not have the strikingly diagonal midribs of that species and the large woody pods would unduly stretch the limits of *S. dilmyi*. It is, in fact, almost exactly between *S. dilmyi* and *S. kanehirae*, from which latter it differs in the larger fruit and also in larger flowers.

Known from the Moluccas and New Guinea.

SPECIMENS EXAMINED: Moluccas: Amboina, Hatiwe, alt. 200m. *Robinson 204.5* (US, type). Ceram, Kairatoe, strand, *Oldenburg 263* (BO); Ceram, *Teijsmann 1952 H.B.* (BO). Java: Jard. Bot. Bogor, cult., *Oldenburg 37* (NY, SING, BO); Bogor, cult., *l. l. 18* (US). New Guinea: Madang Distr., Terr. of New Guinea, near Jal Village, Gogol River Valley, ca. 200 m., *Hoogland 4-968* (A) (this specimen could be *S. kanehirae*, but its fruit is more that of *S. robinsonii*).

The *Oldenburg 37* sheet in New York is marked "patria: Ambon", the other Buitenzorg collection has no data and is sterile and referable here only with doubt. The *Teijsmann 1952 H.B.* sheet has the calyx campanulate, only 8 mm. high. Otherwise it seems identical with the rest of the material examined.

Serianthes kanehirae Fosberg, sp. nov.

Costa foliolae vix obliqua; calyx cylindrica vel vix dilata, ad 10 mm. alta; corolla 20—27 mm. longa; legumen grande oblongum venulosum.

Large tree; leaves with 4—10 pairs of pinnae; leaflets oblong, midrib diagonal only across central third of leaflet; inflorescence notably paniculate, rusty tomentulose; calyx cylindrical to slightly dilated upward, about 9—12 mm. high, lobes ovate; corolla 15—27 mm. long, tube somewhat exserted, yellowish white; pod oblong, venulose, margins somewhat thickened.

This species, named for the late Professor Ryozo Kanehira, forest botanist and authority on the flora of Micronesia, was referred by earlier collectors to *S. grandiflora* (*S. dilmyi*). It is related to that species, but differs in much smaller flowers and in the midrib of the leaflet giving much less the appearance of being diagonally across the blade. It is found in Palau and Yap in Micronesia, and in the Milne Bay district of Papua, New Guinea. Three rather weak varieties are distinguishable.

***Serianthes kanehirae* var. *kanehirae* Fosberg, var. nov.**

Folia rachibus tomentellis, joliolis 12—15 mm. longis 4—5 mm. latis; paniculus ad 10 cm. longus; calyx 6—8 mm. lata; corolla 20—27, mm. longa; legumen 13—15cm. longum, 4.5—5 cm. latum.

Leaf rachis brown tomentulose, 13—18 cm. long; leaflets 12—15 mm. long, 4—5 mm. wide, almost glabrous except for a few hairs at base; panicle up to 10 cm. long; calyx 6—8 mm. wide at top; corolla 20—27 mm. long; pod 13—15 cm. long, 4.5—5 cm. wide, sides irregularly cross veined, margins somewhat thickened.

Found on Palau, at low altitudes, where it is called "ukar".

SPECIMENS EXAMINED: Palau Is.: s.l. *Ledermann H218* (K). Korrör I, Ngar-sid, in old temple grounds, July 22, 1946, *Fosberg 25770* (US, type, BISH, NY, PO, L); coralisland, *Kanehira 176* (FU, T, NY). Babeldaob L, Garudokku, *Takamatsu 1368* (BISH); Arumonogui, *Kanehira 2091* (FU, K, P, NY, T, PNH); Kamsetsu, *Hatusima 4900* (FU, T); Maryoku, *Kanehira* and *Hatusima 5031* (FU, T, A).

***Serianthes kanehirae* var. *yapensis* Fosberg, var. nov.**

Rachis longior, sparse pilosula, foliolis 22—30 jugis, calycis 10 mm. latis, corollis brevior, var. kanehirae differt.

Differs from var. *kanehirae* in the longer leaf rachis, to 30—35 cm. long, pinnae 15 pairs, leaflets about 22—30 pairs on a pinna, 12 mm. long, 5 mm. wide; calyx about 10 mm. wide at top; corolla small, 15—18 mm. long. Endemic on Yap Island, where it is called "gumel"* or "gumor".

SPECIMENS EXAMINED: Caroline Is., Yap I.: s.l. *Volkens i36* (Z), *Volkeiis 357* (Z); *Alvis 99* (US, type).

***Serianthes kanehirae* var. *hooglandii* Fosberg, var. nov.**

Rachis vix tomentella, foliolis 20 mm. longis 9 mm. latisque, paniculis ad 5 cm. longis; calycis 10 mm. latis; legumine 19 cm. longo var. kanehirae differt.

Differs from var. *kanehirae* in almost glabrous leaf rachis, larger leaflets, up to 20 mm. long and 9 mm. wide, slightly more tomentulose beneath, especially toward base; inflorescence much smaller, to 5 cm. long; calyx tending to be more dilated, to 10 mm. wide tardily circumcissile; pod somewhat larger, 19—22.5 cm. long, 5.5—6.4 cm. wide.

Found in Milne Bay District, Territory of Papua, New Guinea, where it is called "behrehber" (Onjob language), "Uiamani" (Gabobora language), or "behjan" (Miniafia language).

SPECIMENS EXAMINED: New Guinea: Territory of Papua: Milne Bay distr. Cape Vogel Peninsula: between Tapio and Kaiyo Bay, limestone country, 10 m, *Hoogland 4331* (US, type, BISH, BO, A); 2 km. inland of Mendine, on river flood plain, 25m., *Hoogland 4724* (US, BO, A); Merapi, 100m., *Brass 22010* (A).

SERIANTHES NELSONII Merr., Phil. Jour. Sci. 15: 542, 1919.

Large tree, to 20 m. tall, trunk to 2 m. diam.; leaves to 23 cm. long, rachis ferruginous-tomentulose, pinnae 10—20 pairs, tending to be alternately arranged on rachis; leaflets 22—30 pairs, oblong to oblong-ovate, 5 mm. long, 2 mm. wide, glabrous above, glaucous and sparsely to densely sericeous-tomentulose beneath, midrib nearer the distal margin, parallel with it; inflorescence 5 to (in fruit) 10 cm. long, of this about half is peduncle, corymbosely branched in upper half; calyx narrowly cylindrical to slightly dilated upward, 7—10 mm. high, 2—3 mm. wide at top, lobes deltoid, 2 mm. long; corolla 15—23 mm. long; pods 12 cm. long, 2—2.5 cm. wide, brown tomentulose, slightly constricted between seeds; seeds hard, shining, smooth, brown, flattened, elliptic, about 1 cm. long, 8 mm wide.

Type locality "Guam, Upe District and hills back of Abu, *Nelson s.n.*, 23, 34, 240 (type), in flower in July and in fruit in December." Unfortunately all of the specimens collected by Nelson were distributed without exact locality data. The holotype, with the data, was undoubtedly destroyed with the Manila herbarium.

The native name "hayun lago" (spelled "hayurangi" by Kanehira and "joyonlago" by Marche) is translated "foreign wood" or "wood from the north", leading to the suggestion by Merrill and Kanehira that the tree is not native in the Marianas. However, since the species has not been found elsewhere and since trees of enormous size were found in the forest, remote from villages, this suggestion must be discounted. Confined to Guam and Rota so far as known. At least at present, on Guam it is found only on the north end.

SPECIMENS EXAMINED: Marianas Is.: Guam, s.l. *Nelson* in 1916 (P, BISH, K, A), *Nelson* 23 (K, US, NY, A), *Nelson* 34 (P, BM, SING, BO, A), *Nelson* 240 (BISH, BO, A, isotypes), *Marche* 288 (P, FO); Tailalo, *Moran* 4583 (NY, FO, UC, BISH); north of Northwest Field, *Steere* 9 (US); Ritidian Point, *Fosberg* 39369 (US, BISH, Fo, NY, L). Rota, s.l. *Kanehira* 1794 (FU, T, P).

SERIANTHES PETITIANA Guill., Not. Syst. 2: 376, 1913.

Small tree, to 3 m. tall, twigs rather thick, young parts brown tomentose; leaves stiff, 15—30—(37) cm. long, rachis thinly tomentulose, pinnae 19—27—(30) pairs, not quite opposite, leaflets up to 30—(35) pairs, not quite opposite, oblong, 4—6 mm. long, 1.5—2 mm. wide, rounded at both ends, somewhat oblique at base, sparsely pilosulous or with a few hairs above, glaucous and sparsely appressed hirtellous or hispidulous beneath, midrib 1/3 the way from distal margin, parallel with it; inflorescence stout, 9 cm. long, peduncle 5 mm. thick, thickly dark brown tomentose, branches 15—20 mm. long, bearing diads of flowers at summits; calyx 12 mm. high, scarcely to strongly dilated upward, 12—16 mm. wide at top, lobes 4 mm. long, triangular; corolla 20—21 mm. long, tube not exerted; fruit not seen.

Endemic to New Caledonia.

SPECIMENS EXAMINED: New Caledonia: s.l., *Petit 2* (P, type); Prony, *F.P. 1548* (P); cours moyen de la Rivière des Pirogues, *Vivot 1109* (P); Yaté River, *Döniker 221* (Z); Rivière Bleue, 200 m., forests along river on laterite, *Guillaumin et Baumann 10, 850* (Z).

SERIANTHES GALYCINA Benth., Trans. Linn. Soc. Bot 30: 600, 1875.

Leaves with 10—12 pairs of pinnae, rachis thinly tomentose, leaflets 10—20 pairs on a pinna, oblong, sparsely tomentulose on upper surface, glaucous and tomentulose to sericeous beneath, about 14 mm., (rarely to 20 mm.?) long, 6(7.5?) mm. wide; inflorescence 9 (to 15?) cm. long, somewhat ramified above; calyx campanulate, 15 mm. long, 12 mm. wide; corolla to 30 mm. long, adherent part not or scarcely exerted; pods oblong, falcate, to 16 cm. long, 2.5—3 (or 5.5?) cm wide, brown tomentose, sides weakly striate transversely, margins not much thickened.

This is a confused species, based by Bentham on two collections from New Caledonia, *Vieillard 419* and *Deplanche 344*, both of which have few rivals as bases for confusion. Of the *Deplanche* collection I have seen possibly three sheets, all from Port Boisé. One in Paris is marked "Deplanche 344", but has the calyx only 6—9 mm. long. One in Kew is labelled "Deplanche Herb, no 344" but no collector is indicated. A similar sheet, from the same locality, also at Kew, is labelled "Lenormand 344"*. Both of these have similarly small calyces, much smaller than described by Bentham. The *Vieillard 419* collection is an extraordinarily mixed one, containing plants of at least two species and from at least two localities, and probably including or being the same as *Lenormand 419*. Although Bentham cites *Vieillard 419*, the specimen in Kew marked by him as new is *Lenormand 419*. The latter sheet, as well as one of *Vieillard 419* in the British Museum, two in Paris, one at Harvard, and one at Chicago, are all from Gatope, and have the large calyx described by Bentham. Three other sheets of *Vieillard 419* in Paris, one from Gatope, the others from Balade, have much smaller calyces. The plants with small calyces of *Vieillard*, *Lenormand*, and *Deplanche* are here referred to *S. sachetae*, as the one really distinctive character mentioned in Bentham's description is the large calyx "calyx amplus, 8—9 lin. longus". This restricts the selection of a lectotype to the *Lenormand* sheet at Kew and the *Vieillard* sheets with large calyx at the British Museum, Chicago, and Paris. The fruit of the Kew sheet corresponds much better with Bentham's description than does that on one of the *Vieillard* sheets, being 2.5 cm. wide and "arcuate", though a bit longer than the "semi-pedale" of the description. One half of a detached fruit on the Chicago sheet is 3 cm. or less wide. Because of the narrow fruit (that of the *Vieillard* sheet is 5.5 cm. wide) and the fact that the *Lenormand* sheet is indicated as new, I venture to designate it as lectotype, in spite of the definite citation

of *Vieillard 419*. A decision either way would be open to criticism, and the chance that the large detached fruit with the *Vieillard 419* collection belongs to *S. sachetae* would add to this. With the *Lenormand 419* sheet as type the interpretation of *S. calycina* adopted here rests on a much firmer foundation than with any other selection.

Dr. George Taylor kindly writes (27 November 1957), "The specimen in the type cover [at Kew] is that of *Vieillard 419* collected at Gatope and com. M. Lenormand ... the *Vieillard* specimen is the obvious one to select as a lectotype ...". Apparently *Lenormand* distributed plants collected by others and his name was, in some cases, associated with the specimens instead of those of the collectors.

Of the material referred to this species one collection, *Caldwell* in 1871, is placed here with much doubt. It may eventually be found that it may go to the much more common and widespread *S. sachetae*. No notes were made on flowers of the *Caldwell* collection in Kew, but its fruit, only 3 cm. wide, almost surely places it in *S. calycina*, even though the inflorescence is 15 cm. long.

SPECIMENS EXAMINED: New Caledonia: s.L, *Caldwell* in 1871 (K); Gatope, *Lenormand 419* (K, type), *Vieillard il9* (BM, F, A, P).

SERIANTHES VITIENSIS Gray, U S. Expl. Exped. Bot 1: 485, 1854.

Leaf rachis thinly brown tomentose, pinnae 6—8, leaflets 11—13 pairs, broadly oblong, 10—15 mm. long, 5.5—7 mm. wide, glabrous, upper margin straight, or nearly so, midrib not quite parallel to it, lower margin convex, apex slightly emarginate; flowers not seen; pod oblong, 12 cm, long, 5.5 cm wide, thinly woody, margins twisted, sides closely brown tomentulose, venulose with 6 branching veins issuing from the dorsal margin; seeds transversally oblong, about 16 mm. long.

TYPE LOCALITY: "Feejee Islands, at Sandalwood Bay, Vanua Levu".

Only the type collection seen, "Feejee Isllds.", 17. *S. Expl. Exp.* (US, type, K, GH). No modern material has been collected that corresponds very well with this, especially in the fruit characters, leaflet shape, and lack of pubescence on leaflets. The venation of the fruit is suggestive of that of *S. kanehirae*.

SERIANTHES GERMAINII Guillaumin, Not. Syst. 2: 375, 1913.

Shrub 2 m. tall; twigs closely zig-zag, scarcely tomentulose, dark brown only on youngest parts; leaves 10—15 cm. long, rachis 5 cm. long, very thinly and minutely brown tomentulose, with 3—5 pairs of pinnae, each with 4—10 pairs of leaflets, these not always exactly opposite, leaflets oblong, emarginate at apex, oblique at base, very coriaceous, glossy above,

dull, glabrous or essentially so beneath, up to 22 mm. long, 10(13) mm. wide, midrib nearly in middle, nearly parallel to sides; inflorescences 3—12 cm. long, thinly but closely tomentulose, irregularly corymbose 2—5 times branched near summit, main branches 15—25 mm. long; calyx more or less turbinate, 4—6 mm. long, irregularly lobed to as deeply as half or more its length; corolla 10—14 mm. long, lobes ovate; fruit unknown.

A very distinct species known only from the Isle of Pines, on serpentina soil. The label of the type gives no locality, but Germain collected on the Isle of Pines and the plant likely came from there.

SPECIMENS EXAMINED: New Caledonia, Isle of Pines: s.l. Germain in 1874—1876 (P, type); au dessus de la prise d'eau du Pic Meunier, Viroit 1044 (P); Pic Nga, Bawmann 13,518 (Z).

SERIANTHES TENUIFLORA Benth., Trans. Linn. Soc. Bot. 30: 599, 1875.

Leaves with rachis tomentose, pinnae 10—? pairs, leaflets 15—20 pairs on a pinna, oblong, slightly curved, 15 mm. long, 5 mm. wide, midrib straight to somewhat curved, tending to be parallel with the concave upper margin, closer to upper than lower margin, blade thinly sericeous beneath, tomentulose on lower part of midrib above and beneath, apex rounded; inflorescence tomentulose, up to 13 cm. long, branched near summit, branches bearing triads of flowers at their apices; calyx cup shaped, 2—3 mm. high, 4 mm. wide, teeth low triangular; corolla narrow, 2—3 mm. wide, up to 21 mm. long, adherent part exerted up to 1 cm., many flowers opening when only partly developed; fruit unknown.

This plant seems to be a distinct species, but it has never been recollected and it is not known where the type came from. Bentham says, "Hab. Pacific Islands, Cunningham" in Herb. Hooker. I do not know the history of this specimen. Alan Cunningham never visited the Pacific Islands."

SPECIMENS EXAMINED: "Ins. Pacific", Cunningham (K, type).

Serianthes ebudarum Fosberg, *sp. nov.*

Folia pinnis 10-jugis foliolis glabris, inflorescentia compacta, calyx 5—6 mm. longa, corolla 15—23 mm. longa gracilis, legumen oblongum 13 cm. longum 3 cm. latumque.

Leaves with raches 10—20 cm. long, thinly tomentose, pinnae about 10 pairs, leaflets 13—20 pairs, 8—11 mm. long, 2—3 mm. wide, glabrous, oblong, slightly curved to straight, apex rounded, midrib straight to slightly curved, nearer distal margin, slightly diagonal; inflorescence thinly tomentose, long pedunculate, compactly corymbosely branched near apex, in flower 5—7 mm. long, in fruit 10 cm. long; calyx tubular 5—6 mm. long, 3.5—4 mm. wide at apex, sericeous tomentose; corolla slender, 15—23 mm. long, pink, adherent part somewhat exerted; pod oblong, straight, up to 13 cm. long, 3 cm. wide, tomentose, cross venation obscure, moderately close.

This species is closest to *S. tenuiflora* Benth. and is known only from the New Hebrides. Native name "ney-aroney" in Erromanga.

SPECIMENS EXAMINED: New Hebrides: Erromanga, I., Dillon Bay, 300m., *Kajewski* 312 (K, US, NY, BISH). Aneityum I., Anelgauhat Bay, 200 m., *Kajewski* 743 (K, US, NY, type, A, BISH).

SERIANTHES MYRIADENIA (Bert, ex Guillem.) Planch, *in* Benth., Hook, London Jour. Bot. 5: 108, 1846.

Acacia myriadenia Bertero ex Guillem. in Zeph. Tait., Ann. Sci. Nat. Bot. II, 7: 359, 1837.

Tree; leaves with rachis thinly tomentulose, up to 34 cm. long (to 0.5 m. acc. Guillem. in), pinnae up to 17 cm. long, leaflets 13—20 pairs on a pinna, oblong, usually somewhat curved, apex rounded, midrib nearly parallel to long axis of leaf, slightly closer to distal margin; inflorescence corymbiform, 5—15cm. long (to 27cm. in *Wilder* 1222); calyx tubular, scarcely dilated; corolla 20—30 mm. long, thinly tomentose; pod oblong, brown tomentose, thinly woody, usually somewhat cross venulose.

This species was included in the original *Serianthes grandiflora* by Bentham, but Planchon promptly pointed out to him that *Acacia myriadenia* was a distinct species. This must have been in a letter, as no reference to a published statement has been found. Gray, in the Botany of the U. S. Exploring Expedition, p. 485, 1854, refers to it as "*Serianthes myriadenia*, Planchon, ined." It is apparently confined to the Society, Marquesas and Austral Islands, though much of the material cited here as *S. sachetae*, *S. ebudarum*, and *S. melanesica* has generally been referred to it. These species are undeniably close, but together form an incoherent aggregation, almost undefinable as a single species. The ample leaves, narrow tubular calyces, large corollas, and wide, thinly woody fruits with margins not much thickened, serve to distinguish *S. myriadenia*.

A specimen in Paris, collected by *Moerenhout* in 1834 is marked as type, but this sheet has a twig with several leaves, while Guillem. in his original publication, discussed "Une seule feuille". This, as well as the size of the leaf and the fact that the collection is ascribed to Bertero and *Moerenhout*, suggests that the actual type is the sheet in Paris bearing a single fragmentary rachis and three pinnae, labelled Tahiti, 1831, *Bertero et Moerenhout*, and this sheet is here regarded as type. The rest of the pinnae may be what are enclosed in an envelope attached to another sheet, with no collector indicated. Guillem. asks whether this species may not be the same as *Mimosa glandulosa* Forst. or *Mimosa granulosa* Labill., but in my opinion is merely expressing a reasonable doubt, rather than actually in-

cluding these earlier names as synonyms. *Mimosa glandulosa* Forst. is a nomen nudum applied to the plant now known as *Leucaena insularum* (Guillem.) Dän. and *Mimosa granulosa* Labill. is *Albizia granulosa* (Labill.) Benth.

Two varieties are recognized, one from the Society and Marquesas Islands, the other from the Austral Islands.

Serianthes myriadenia var. *myriadenia*

Leaflets 13—18 mm. long, 5—7 mm. wide, glaucous and sparsely sericeous tomentulose beneath, sparsely sericeous tomentulose on midrib above, 14—20 pairs on a pinna; inflorescence 7—27 cm. long; calyx 7 mm. high, 3 mm. wide, scarcely expanding upward, lobes triangular, 1 mm. high; corolla 25—30 mm. long; pods up to 15 cm. long, 6.5 cm. wide, margins not thickened.

Probably confined to the Society and Marquesas Islands, though a collection by *Banks and Solander* in 1769 is labelled "Friendly Islands". This matches exactly material from Tahiti and has a much longer rachis, larger leaflets, and larger pods than any other known Tonga material. It is probably mislabelled. This collection and that by *Setchell and Parks 494*, from Tahiti, have the leaflets almost glabrous beneath.

The native name in Tahiti, as recorded on a number of collections and by Henry, Bishop Mus. Bui. 48: 57, 1928, is "faifai". This is spelled "fa'ifa'a" by Chabouis, *Petite Hist. Nat. des E. F. O.* 37, 1954. Chabouis, indicating considerable confusion, gives *Mimosa glandulosa* as an alternative name for this, and also gives *Acacia myriadenia* with the native name "taroire". The name given in the Marquesas, as noted on the *Mumford and Adamson* specimen, is "haihai".

SPECIMENS EXAMINED: Society Is.: s.l. *Banks and Solander* (BM); Tahiti: s.l., *Bertero and Moerenhout* in 1831 (P, type), *Moerenhout* in 1834 (P), in 1835 (F), *Barclay s.n.* (K), *Hinds* in 1841 (K), *Nadeaud 508* (P), *s.n.* (P), *Vesco s.n.* (P), *Dupetit-Thouars s.n.* (P), "*Savatier?? Lepine??*" (P), *Lepine 4* (P), *Savatier s.n.* (P), *U.S. Expl. Exped.* (US, GH), *Savatier s.n.* in 1877 (P), *Savatier 915* (P); Mt. Torea, *Wilder* in 1932 (NY), *Wilder 1222* (A, BISH); above the falls, Maara Valley, *Setchell & Parks 494* (BISH, GH, P, US). Moorea: s.l. *Vesco s.n.* (P); Tiararabu, 600—700 m. *Lepine s.n.* (P).

Marquesas Is.: Nukuhiva, Tehaihai, *Adamson and Mumford 607* (NY, BISH). "Friendly Islands", *Banks and Solander s.n.* in 1769 (US).

SERIANTHES MYRIADENIA var. RURUTENSIS F. Brown, Bishop Mus, Bull. 130: 105. 1935.

Rachis of leaves 11—28 cm. long, pinnae 7—13 pairs, leaflets sparsely sericeous tomentulose above, up to 20 mm. long and 9 mm. wide, usually

much smaller; inflorescence 5—13 cm. long; calyx 9 mm. long, scarcely dilated upward, lobes triangular ovate, 2 mm. long, tending to dehisce transversely at base; corolla 21—25 mm. long, white; pod at least to 13 cm. long and 4 cm. wide (immature), irregularly torulose, rather closely and obscurely cross veined, margins somewhat thickened.

The description of this variety is taken from plants from two islands, Rurutu and Raivavae, and may, when more material becomes available, be shown to include two varieties. The variety, as originally proposed by Brown, depended mostly on the remarkable character of a double series of corolla lobes, probably not matched otherwise in the Leguminosae. Only one flower is available on the type. The flowers on the Raivavae collection do not show this character. Until it is shown to occur on other specimens I shall regard it as a case of teratology, and the variety will have to rest on its other less spectacular characters.

This variety is by no means clearly set off from var. *myriadenia* except in the rather trivial character of the puberulent or sericeous upper surface of the leaflets. The two seem to overlap in practically all characters, but the ranges of variation differ. Var. *rurutensis* usually has shorter leaves with only 7—11 pairs of pinnae, the leaflets more subcoriaceous, the calyx 7—9 rather than 6—7 mm. long, calyx lobes longer, the corolla shorter, and the fruit, not known in mature condition, seems to be narrower, more torulose, and with more of a tendency to thickened margins.

It seems best, for the present, to maintain this variety. Further collecting may show either that it will not stand, that two varieties exist, one on Rurutu and one on Raivavae, or that the Rurutu material may be a distinct species because of its peculiar corolla. The latter possibility seems unlikely, however,

The native name on Rurutu is given by Stokes as "ai ai".

SPECIMENS EXAMINED: Austral Islands: Rurutu: Mato Arei, 10 m., Stokes 185 (BISH, type), *St. John* 16739 (BISH); Mato Naa, 60m., *St. John* and *Fosberg* 16559 (BISH). Raivavae: northeast side of Pic Rouge, 140m., *St. John* and *Fosberg* 159i9 (BISH).

Serianthes sachetae Fosberg, *sp. nov.*

Foliola utrinque sparse sericea; calyx 6—14 mm. longus; corolla 20—35 mm. longa, legumen grande valde lignosum marginibus valde incrassatis.

Tree up to at least 20 m. tall; leaves with rachis 10—25 cm. long, thinly tomentose with 4—10 pairs of pinnae, leaflets up to 21 pairs on a pinna, oblong, straight, up to 20 mm. long, up to 10 mm. wide, usually smaller, sparsely sericeous or sericeous tomentulose beneath, less so above, midrib parallel to margins or very slightly diagonal, margins straight; inflorescence stout, 8—18 cm. long, corymbosely branched near top; calyx campanulate

to cup-shaped or tubular, 6—14 mm. long, 6—9 mm. wide, lobes ovate-triangular; corolla rose to purple or white, (20)—25—35 mm. long; stamens reddish; pods large, oblong, 14—25 cm. long, 5—7 cm. wide, very thick and woody, the margins usually conspicuously thickened, sides more or less cross-veined.

I take pleasure in naming this species for my research assistant, Miss Marie-Hélène Sachet, in recognition of her competence in Pacific botany.

This is by far the commonest species in New Caledonia, usually found on serpentine or peridotite soil, and is variable. Specimens have in the past generally been referred to *S. myriadenia* or to *S. calycina*, which latter they most resemble. The plants coming within the above circumscription can be sorted into about 5 more or less discernible groups differing in size and shape of calyx, and size and shape of fruit. Individual specimens differ more strikingly in one or more characters. With the material at hand these groups can scarcely be characterized firmly enough to be convincing or to be recognized again. We are apparently dealing with a widespread variable population which has not been adequately sampled to be segregated into varieties, though some will probably be recognized when more collecting has been done. The salient feature by which this species can be recognized is the large woody fruit with thickened margins, in combination with a small calyx. It is entirely probable that some of the variability is the result of hybridization locally with *S. calycina*, with which it grows in at least one locality. Of the specimens cited below *Daniker 1233* and *1581* represent a form with extraordinarily small fruits and leaves. *Baumann ±4,446* has the margins of the fruits scarcely thickened; flowers are lacking; in habit it somewhat resembles *S. germainii*, but in most respects it seems to be closest to *S. sachetae*. A *Pancher* sheet in the Paris herbarium with New Caledonia crossed out on the label and with a smaller label partly torn off that may say Tahiti, does not much resemble the Tahiti *S. myriadenia*. It has a large woody cross striate fruit, 25 cm. long, 6 cm. wide, larger tubular calyces 2—11 mm. long, and corolla up to 30 mm. long. Its inflorescences are only 4—9 cm. long. Its leaflets are definitely like those of *S. sachetae*. It is very likely that this plant came from New Caledonia and is *S. sachetae*.

SPECIMENS EXAMINED: New Caledonia: s.l. *Pancher 4* (K, P), s.n. (P), in **1864** (P), *Mueller s.n.* (P), *Petit 2* (P), *Lebcrt. et Founder 2* (P, BM), *Montrouzier s.n.* (P), *Lecard s.n.* in 1879 (BM, P, BO); Baie de Prony, *Balansa 322* (P, type); Prony, *Balansa 322* (BM, A, US), *Franc 1762* (P); Port Boise, *Deplanche 344* (P), *Herb. Deplanche*, s. coll. *SU* (K), *Lenarmand 344* (K), *Thiebault* in 1867 (P); Yate, west shore of river, *Buchholz 1495* (US); Balade, *Vieillard bin* (P); Mt. Mou, *Balansa 2811* (BM); 350 m. *Guillaumin et Baumann 10,093* (Z); Baie Vie, *Compton 85b* (BM); le long des berges du cours inferieur de la Taughene, *Viroit 763* (P); Gatope, *Vicillard*

419 (P); Hermitage, Noumea, *Franc 741* (P), 200m., *McKee 2310* (US, A); Hermitage Valley, 400 m., *Baumann 1216U* (Z); between the peaks of Mt. Kaala, *Ddniker 123S* (Z); Boh Valley, 250 m., *Baumann 12,16h* (Z); Yatè, *Sarasin 680* (Z); St Louis, near Noumea, *Daniker 2801* (Z); Goro, 2 m., *Viroi 657* (A); Dumbea, *White 2041* (A, P); Island of Yande, *Ddniker 1581* (Z); 11 e d e s P i n s, *Gerwain s.n.* in 1874—1876 (P); Loyalty Is., Mare, *Daniker 2867* (Z).

Australia: New South Wales, Sydney, cult, in Botanic Garden, *Cheel s.n.* in 1932 (US).

***Serianthes melanesica* Fosberg, sp. nov.**

Folia pinnis 4—12 jugis, foliolis rectis vel vix curvatis, calyx 6—10 mm. altus, corolla 18—30 mm. longa, legumen 3.5—4.5 cm. latum.

Leaves with rachis 8—30 cm. long, tomentose to pilosulous, pinnae 4—12 pairs, leaflets 8—26 pairs, oblong, straight to very slightly curved, midrib closer to distal margin, parallel to it when margin is straight; inflorescence corymbiform, 5—15 cm. long; calyx tubular or cylindrical to cup shaped or campanulate, 6—10 mm. high; corolla 18—30 mm. long; pods 9.5—18 cm. long, 3.5—4.5 cm. wide, brown tomentose, closely but usually not conspicuously cross veined.

This is an unsatisfactory, heterogeneous species, too close to *S. myriadenia*, *S. sachelae*, and *S. ebudarum*, but if combined with them making the whole undefinable. Arguments might equally well be advanced for combining these species or for recognizing at least all the varieties of *S. melanesica* as separate species. The middle course adopted here may be best, at least until more ample and more complete material is available of some of the entities discernible in *S. melanesica*. It is not absolutely certain that some of the specimens here associated really belong together.

This species centers in Fiji, but extends to Samoa, Tonga, the New Hebrides and the Loyalty Islands, and at least six varieties are recognizable. The plants here associated were formerly mostly placed in either *S. myriadenia* or *S. vitiensis*.

***Serianthes melanesica* var. *melanesica*.**

Folia rachibus 8—15 cm. longis foliolis supra glabris vel subglabris, calyx cupuliformis vel campanulata, legumen viarginibus leviter incrassatis.

Leaves with rachis 8—15 cm. long, pinnae 4—8 or more pairs, leaflets 8—20 pairs, 8—20 mm. long, 3.5—6 mm. wide, (7 mm. by 2.5 mm. in *DeGENER 14,657*), glabrous to sparsely sericeous or pilosulous beneath, usually glabrous, rarely slightly sericeous above; inflorescence 5—15 cm. long, up to 7—8 cm. wide at top; calyx cylindrical or cup shaped to campanulate, 6—10 mm. high, 5—7 mm. wide; corolla 20—30 mm. long, adherent part well exerted; pod 9—11 cm. long, 3.5—4.5 cm. wide, margins somewhat thickened.

This is the common *Serianthes* in Fiji and is well distributed through the group. Possibly more than one variety are represented. A sterile specimen from a high altitude, *Degener 14,657*, especially may prove to be distinct when better material is collected.

The native name is "vaivai".

SPECIMENS EXAMINED: Fiji Islands: s.l., *U.S. Expl. Exped.* (NY); Waindoi, near beach, *Mead 1962* (K). Viti Levu: Tholo West, near Sovi Bay, 0—60 m., *Degener 15,041* (NY, type, A, US, K, BISH) ; Sigatoka, *Phillips (Greenwood) 657 A* (K) ; Mba, vicinity of Nalotawa, east base of Mt. Evans Range, 550—600 m., *Smith 4489* (US, BISH, A) ; Sami, Suva, *McDaniels 133* (K); Sovutwambu, 5 miles from Nandarivatu, 2500 feet, *Degener 14,657* (NY, A). Vanua Levu: Masuata Coast, sea level, *Greenwood 657* (K). Ovalavt: s.l. *Storck 887* (K, GH, BM) ; Port Tuimairo, *Seemann 145* (K, BM, A, P). Vanua Mbalavu, Malatta, 0—100 m., *Smith 1447* (US, NY, P, K, A, BISH, BO). Fulanga, 0—80 m., *Smith 1212* (K, US, NY, A, BISH, P, BO). Ongea Ndriti, 5—15 m., *Bryan 415* (BISH), *Bryan (by Beck) 404* (BISH).

Serianthes melanesica var. *macdanielsii* Fosberg, var. nov.

Folia rachibus ad 15 cm. longis, foliolis maxime 9 mm. longis 3.5 mm. latisque; calyx late turbinata vel campanulata, 9 mm. alta lataque.

Leaves with rachis up to 15 cm. long, 8—11 pairs of pinnae, leaflets 20—26 pairs on a pinna, very small, up to 9 mm. long and 3.5 mm. wide; inflorescence up to 9 cm. long; calyx broadly turbinate or campanulate, 9 mm. high, 9 mm. wide at top; corolla 22—23 mm. long; pod 12 cm. long, 4.5 cm. wide.

Named for the collector of the type, Prof. L. H. MacDaniels of Cornell University, noted for his studies of bananas and experienced in the botany of the south Pacific.

In its small leaflets this variety resembles var. *yunckeri* and *S. eburdarum*. Its characters fall mostly almost within the extremes of var. *melanesica* but there these extremes do not occur in this combination.

SPECIMENS EXAMINED: Fiji: s.l. *Home 367* (GH) ; Viti Levu, 5 miles west of Suva, 4m., *MacDaniels 1067* (BISH, type, A).

Serianthes melanesica var. *yunckeri* Fosberg, var. nov.

Folia rachibus 12—16 cm. longis foliolis utrinque sericeis; calyx cylindrica 8—10 mm. alta, corolla ad 30 mm. longa.

Leaves with rachis 12—16 cm. long, tomentose, leaflets 8—16 pairs, up to 15 mm. long, 3—6 mm. wide, sparsely sericeous or sericeous-pilosulous on both sides; inflorescence 6—9 cm. long; calyx tubular, 8—10 mm. high, 3.5—7 mm. wide at apex, corolla up to 30 mm. long, adherent part exerted 7—8 mm., pink (in the *Kajeivski* specimen); pod unavailable.

Named for the collector of the type, the distinguished Professor T. G. Yuncker, of DePauw University, widely experienced in Pacific botany.

Distinguished from var. *melanesica* by the narrower calyx and the leaves sparsely hairy on both sides.

The native name "mohemohe" is recorded for Vavau by Crosby.

SPECIMENS EXAMINED: Tonga Islands: s.l. *Matthews 66* (K). Vavau I., s.l. *Crosby 57* (K); summit of Talau, west of Neiafu, 130 m., *Yuncker 16,141* (US, type). Late I. (or Tate 1.) *Grubbe T3* (BM).

New Hebrides: Tanna I., Lenakel, *Kajewski 41* (K, A, BISH).

***Serianthes melanesica* var. *samoensis* Fosberg, var. nov.**

Folia rachibus 17—18 cm. longis tomentosis; calyx tubularis 10 mm. altus; corolla 30 mm. longa; legumen 17—18 cm. longum marginibus valde incrassatis.

Leaf rachis 17—21 cm. long, tomentose, leaflets not available; inflorescence 10—12 cm. long; calyx tubular, slightly dilated upward, 10 mm. long, 7 mm. wide at top, lobes triangular; corolla 30 mm. long, adherent part exerted 5—7 mm; pod 17—18 cm. long, 3.5—4 cm. wide, beaked, margins conspicuously thickened.

Close to var. *meeboldii* but differing in the much longer pod with strongly thickened margins.

SPECIMEN EXAMINED: Samoa; s.l., *Whitce 177* (K, type).

***Serianthes melanesica* var. *meeboldii* Fosberg, var. nov.**

Folia rachibus 25—30 cm. longis foliolis 15—26 jugis glabris vel glabratis costis sparse sericeis, calyx tubularis leviter dilata 3—12 mm. alta.

Leaves with rachis 25—30 cm. long, loosely tomentulose-pilosulous, leaflets 15—26 pairs, 6—14 mm. long, 2—4.5 mm. wide, glabrous or glabrate excepting the midrib sparsely sericeous beneath; inflorescence 8—10 cm. long; calyx tubular, somewhat dilated upward, 8—12 mm. long, 6—7 mm. wide at top, lobes triangular; corolla up to 25 mm. long; pod 9 cm. long, 3.5 cm. wide.

Named for the collector of the type, Mr. Alfred Meebold.

The three collections placed here differ markedly in size of leaflets, but seem to go together in the glabrous or glabrate leaflets, long rachises, and narrow somewhat dilated calyces.

SPECIMENS EXAMINED: Fiji: s.l., *Home 267* (K), U.S. *Expl. Exped.* (NY). Viti Levu, Lamy, 6 miles from Suva, *Meebold 16,465* (K, type, BISH).

***Serianthes melanesica* var. *lifouensis* Fosberg, var. nov.**

Folia rachibus 24—25 cm. longis pinnis 9—11 jugis, foliolis supra leviter hirtellis infra glabratis, inflorescentia angusta, calyx campanulata 10 mm. alta, legumen 13—14 cm. longum marginibus vix incrassatis.

Young parts dark brown tomentose; leaves with rachis 24—25 cm. long, thinly brown tomentose, pinnae 9—11 pairs, leaflets up to 17 pairs, glabrate beneath, very slightly hirtellous above, especially near base of midrib; inflorescence about 8 cm. long in flower, 12 cm. fruit, very narrowly corymbose, branches little over 1 cm. long, dark brown tomentose; calyx (in bud) somewhat campanulate, 10 mm. high, 10 mm. wide at top, lobes triangular, 2.5—3 mm. long; corolla unavailable; pod straight to slightly falcate, 13—14 cm. long, 4—4.5 cm. wide, margins only slightly thickened; seeds irregularly transversally oblong, 15—17 mm. long, 7—9 mm. wide, dark brown, margin darker, testa very hard.

Rather different looking, but from its characters to be associated with *S. melanesica* rather than with *S. sachetae* as might otherwise have been expected from its occurrence in the Loyalty Islands.

SPECIMEN EXAMINED: New Caledonia [Loyalty Islands]: Lifou, *Balansa* 2458 (P, type).

EXCLUDED SPECIES AND SPECIMENS.

1. *Serianthes gigalobium* Kosterm., *Reinwardtia* 2: 357, 1953.
This is *Sympetalandra borneensis* Stapf. See *Gard. Bull. S.S.* 5.
2. *Serianthes inopinata* Harms, *Notizbl.* 11: 55, 1930.
This is a *Pithecellobium (sensu lato)* in most respects not especially dissimilar to *P. saman* (Jacq.) Benth. (*Samanea saman* (Jacq.) Merr.) but with a much thicker much woodier pod, this about 2 cm. thick and 4 cm. wide, broadly oblong in cross section, slightly curved, apparently indehiscent but disintegrating by transverse fissuring along the prominent transverse rugosity. I have not placed it. The specimen came from the botanical gardens at Rio de Janeiro, *Ducke* 15248 (US).
3. *Serianthes minahassae* (Koord.) Merr. & Perry, *Jour. Arn. Arb.* 23: 393, 1942.
This should, in my opinion, be referred back to *Albizia*, where the correct name is *Albizia minahassae* Koord., *Med. 's Lands Plant.* 19: 416, 1898; *Suppl. Fl. N. O. Celebes* 1 (1): 13, t. 4, 1918.
Merrill and Perry made their transfer without comment, but gave a good description of the tree. Two important characters make this species seem out of place in *Serianthes*. It has an inflorescence which is a panicle of pedunculate spikes and a definitely margined somewhat dehiscent pod, (see Kostermans 1954, p. 4), both of which relate it to *Albizia*, rather than *Serianthes*. The pod seems to split along the edges but not to come apart. The parchment-like endocarp separates from the mesocarp, a character out of place in *Serianthes*.

4. *Serianthes ledermannii* Harms, Bot. Jahrb. 55: 43, 1917.
This is undoubtedly a form of *Albizia minahassae* Koord.
5. *Serinnthes* sp. Tahiti, Tilden 397 (K) has been referred to *Serianthes*. It is a single leaf not too dissimilar to that of *Serianthes*, but with slight whitish tomentum near the bases of the pinnae. The leaflets are oblong, rounded a', apex, 10 mm. long, 2.5 mm. wide. It does not match *Serianthes myriadenia* and I have not placed it, though it might conceivably be *Leucaena glauca*.
6. *Serianthes* sp. New Caledonia, Franc 618 (BM, NY) was named *Serianthes* but is *Albizia granulosa* (Labill.) Benth.

LIST OF COLLECTORS NUMBERS

Adamson & Mumford 607 = *S. myriadenia*, *myriadenia*; Agama 23321 = *S. dihnyi*; Ahern 447 (= 147) et 4479 — *S. dilmyi*; Alvis 99 = *S. kanehirae*, *yapensis*;

Balansa 322 et 2811 = *S. sachetae*; 2458 = *S. melanesica*, *lifouensis*; Banks & Solander s.n. = *S. myriadenia*, *myriadenia*; Barclay 3585 = *S. dilmyi*; s.n. = *S. myriadenia*, *myriadenia*; Baumaim 13518 = *S. germanii*; 12164 = *S. sachetae*; bb. 14380, 28735, 29890 = *S. dilmyi*; Beccari s.n. = *S. dilmyi*; Beck 404 = *S. melanesica*, *melanesica*; Bertero & Moerenhout s.n. = *S. myriadenia*, *myriadenia*; Brass 22010 = *S. kanehirae*, *hooglandii*; Brown s.n. = *S. dilmyi*; Bryan 404 et 415 = *S. melanesica*, *melanesica*; Buchholz 1495 — *S. sachetae*;

Caldwell s.n. = *S. calycina*; Cheel s.n. =: *S. sachetae*; Compton 854 = *S. sachetae*; Corner 28089 = *S. dilmyi*; Cortes & Knapp 23939 = *S. dilmyi*; Crosby 57 = *S. melanesica*, *yunckeri*; Cuming 1592 = *S. dilmyi*; Cunningham s.n. = *S. tenuiflora*; Curran 3800 = *S. dilmyi*;

Däniker 221 = *S. petitiانا*; 1233, 1581, 2801, 2867 = *S. sachetae*; Degener 14657 et 15041 = *S. melanesica*, *melanesica*; Deplanche 344 = *S. sachetae*; Ducke 15248 =; *Samanea saman*; Dupetit-Thouars s.n. = *S. -myriadenia*, *myriadenia*.

Everett 5616 = *S. dihnyi*;

Pairchild 299 = *S. dilmyi*; Fenix 1166 = *S. dilmyi*; Fosberg 25770 = *S. kanehirae*, *kanehirae*; 39369 = *S. nelsonii*; Foxworthy, Demesa & Villamil 13298 = *S. dilmyi*; Franc 618 = *Albizia granulosa*; 741 et 1762 = *S. sachetae*.

Gaudichaud s.n. = *S. dilmyi*; Germain s.n. = *S. germanii*; s.n. = *S. sachetae*; Greenwood 657 et A = *S. melanesica*, *melanesica*; Griffith s.n. = *S. dilmyi*; Grubbe T. S = *S. melanesica*, *macdanielsii*; Guillaumin & Baumann 10093 = *S. sachetae*; 10850 = *S. petitiانا*;

Hatusima 4900 = *S. kanehirae*, *kanehirae*; Hoogland 4331 et 4724 = *S. kanehirae*, *hooglandii*; 4968 = *S. robinsonii*; Home 267 = *S. melanesica*, *mceboldii*; 367 = *S. -melanesica*, *macdanielsii*.

Jaheri s.n., 322, 2211 = *S. dilmyi*;

Kajewski 312 et 743 = *S. ebudarum*; 41 = *S. melanesica*, *macdanielsii*; Kanehira 176 et 2091 = *S. kanehirae*, *kanehirae*; 1794 = *S. nelsonii*; Kanehira & Hatusima 2783 et 13188 = *S. dilmyi*; 5031 = *S. kanehirae*, *kanehirae*; Kjellberg 2453

= *S. dilmyi*; Koorders & Oldenburg 29484 = *S. dilmyi*; Kostermans 2783 = *S. dilmyi*; Kurz s.n. = *S. dilmyi*;

Lebert & Pournier 2 = *S. sachetae*; Lecard s.n. = *S. sachetae*; **Ledermann** 14218 = *S. kanehirae, kanehirae*; Leeuwen-Reynvaan 3761 = *S. dilmyi*; Lenormand 344 = *S. sachetae*; 419 = *S. ealyeina*; Lepine s.n. et 4 = *S. myriadenia, myriadenia*; Lutjeharms 4652 et 5161 = *S. dilmyi*;

Macdaniels 133 = *S. melanesica, melanesica*; 1067 = *S. melanesica, macdaniel-sii*; Maingay 2391 = *S. dilmyi*; Malessy 8 = *S. dilmyi*; Marche 288 = *S. nelsonii*; Matthews 66 = *S. melanesica, yunckeri*; McKee 2310 = *S. sachetae*; Mead 1962 = *S. melanesica, melanesica*; Meebold 16465 = *S. melanesica, meeboldii*; Moerenhout s.n. = *S. myriadenia, myriadenia*; Montrouzier s.n. = *S. sachetae*; Moran 4583 = *S. nelsonii*; Mueller s.n. = *S. sachetae*;

Nadeaud 508 et s.n. = *S. myriadenia, myriadenia*; Nelson s.n., 23, 34, 240 = *S. nelsonii*;

Oldenburg 37 et 263 = *S. robinsonii*;

Pancher s.n. et 4 = *S. sachetae*; Panjalian s.n. = *S. dilmyi*; Petit 2 et 1548 = *S. petitiana* and *S. sachetae*; Philips 657A = *S. melanesica, melanesica*; Ponce. 22829 = *S. dilmyi*;

Ramos & Edano 44336 = *S. dilmyi*; Ridley s.n. = *S. dilmyi*; Robinson 2045 = *S. robinsonii*;

Sarasin 680 = *S. sachetae*; Savatier s.n. et 915 = *S. myriadenia, myriadenia*; Seemann 145 = *S. melanesica, melanesica*; Setchell & Parks 494 = *S. myriadenia, myriadenia*; Sinclair 38902 et 38956 = *S. dilmyi*; Smith 1212, 1447, 4489 = *S. melanesica, melanesica*; Steere 9 = *S. nelsonii*; St. John 16739 = *S. myriadenia, rurutensis*; St. John & Fosberg 15949 et 16559 = *S. myriadenia, rurutensis*; Steup s.n. = *S. dilmyi*; Stokes 185 = *S. myriadenia, rurutensis*; Storck 887 = *S. melanesica, melanesica*;

Takamatsu 1368 = *S. kanehirae, kanehirae*; Tangkilisan 17 = *S. dilmyi*; Teijsmann s.n., 2974, 4472 = *S. dilmyi*; Teijsmann 1952 = *S. robinsonii*; Thiebault s.n. = *S. sachetae*; Tilden 397 = ? *Leucaena glauca*; Toewal 2211 = *S. dilmyi*;

Uno 44 = *S. dilmyi*; U.S. Explor. Exp. s.n. = *S. melanesica, melanesica*; id., vav. *meeboldii*; id., *S. myriadenia, var. myriadenia*; id., *S. vitiensis*;

Vesco s.n. = *S. myriadenia, myriadenia*; Vidal 2697 et 2698 = *S. dilmyi*; Vieillard 419 = *S. sachetae* and *S. ealyeina*; Virot 657 et 763 = *S. sachetae*; **Virot** 1044 = *S. germainii*; Virot 1109 = *S. petitiana*; Volkens 357 et 436 = *S. kanehirae, yapensis*;

Wallich 5285 = *S. dilmyi*; Warburg 20319 = *S. dilmyi*; White 2041 = *S. sachetae*; Whitmee 177 = *S. melanesica, samoensis*; Wilder s.n. et 1222 = *S. myriadenia, myriadenia*; Womersley & Gray 8614 = *S. dilmyi*;

Yuncker 16141 = *S. melanesica, yunckeri*.