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So many species of *Eugenia* Linn. *sensu latiore* from Borneo have been published that some correlation of those already appearing in botanical literature seemed highly desirable as a basis for future work. A fairly detailed study of the available material has brought to light forty-two new species, extended the ranges of some dozen others, and also has caused us to modify the rather generally accepted broader interpretation of the generic concept.

Linnaeus' treatment of *Eugenia*, Sp. Pl. 470, 471. 1753, consists of five species, the first two of which belong to *Jambosa* de Candolle as that genus is currently defined, and the last two are species of *Barringtonia* in the Lecythidaceae. Fortunately or unfortunately, depending on whether American or Asiatic species are under consideration, the third one, *Eugenia uniflora* Linn., was selected as the standard-species of the genus, although it in turn was based on two wholly unrelated plants, a Brasilian species and a drawing depicting the Old World *Eugenia malaccensis* Linn. Regarding this species Trimen, Jour. Linn. Soc. Bot. **24**: 142. 1887, states: "*E. uniflora* of Linnaeus is a curious mixture. Hermann's figures show a large-flowered species with usually solitary sessile flowers: apparently a slight variant of *E. malaccensis*. But Linnaeus quotes also Micheli's figure (Nov. Gen. *t. 108*) of the very different species from South America, now semi-naturalized in parts of India, *E. Michelii*, Lam. Linnaeus's name should be abandoned." Eliminating the reference to the "Flora zeylanica 189" in the original description, we find that *Eugenia uniflora* Linn., as represented by an actual specimen in Linnaeus' herbarium, which was there in 1753, and by the other pre-Linnaean references, is a plant of Brasilian origin, a *Eugenia* section *Eueugenia*. As the generic designation *Eugenia* was originated by Micheli, Nov. Gen. 226, *t. 108*. 1729, and that description and illustration is cited by Linnaeus only in connection with *Eugenia uniflora* Linn., it is logical to accept this as the standard-species of the genus; and *Eugenia* thus typified provides a reasonably safe generic designation for the numerous American species.

The earlier literature on the Old World species indicates that some botanists treated these as belonging to *Eugenia* Linn.; others dissatisfied with the breadth of generic limits assigned to *Eugenia* distributed the species into other genera or generic segregates.

Scanning the list of available generic names based on Old World representatives of *Eugenia* Linn. *sensu latiore*, we find that *Caryophyllus* Linn. is the oldest, having been published in Gen. Pl. 1754 (also in 1735), and with a binomial, *C. aromaticus* Linn., in 1753. It is a *Jambosa* de Candolle as modern authors have attempted to delimit that group, yet in its general aspect and in all characters except its free petals it is more like *Syzygium* Gaertner than *Jambosa* de Candolle. Strictly speaking *Jambosa* de Candolle having been conserved against *Jambos* Adanson (1763) is also conserved against *Caryophyllus* Linn. if the latter name be used to cover only the "Jambosa" group. The next name is *Jambos* Adanson (1763); the Latinized form *Jambosa* de Candolle has been conserved against it. The third is *Syzygium* Gaertner (1788), and this we accept, following Alston, to include not only those Old World species with calyptrate petals (*Syzygium* proper), but also most of the other Old World species with free petals, or *Jambosa* de Candolle; i. e., most of those Old World species of *Eugenia* Linn. *sensu latiore* that various authors have not too successfully attempted to distribute between *Jambosa* de Candolle and *Syzygium* Gaertner. The conserved *Jambosa* de Candolle is referred back to the earlier *Syzygium* Gaertner in accordance with Article 21 (note 3) of the International Rules: "A conserved name is conserved . . . so long as the group concerned is not united or reunited with another group bearing a legitimate name. In event of union or reunion with another group, the earlier of the two competing names is adopted in accordance with Art. 56."

In accepting *Syzygium* Gaertner in preference to *Caryophyllus* Linn. we admit that we are not following strict priority, for *Caryophyllus* Linn. was validly published and, strictly speaking, if its characters were expanded to include *Syzygium* Gaertner, should be adopted. However, but 20 binomials have been

* Acknowledgement is gratefully made to the American Philosophical Society for a grant from the Penrose Fund that enabled us to finish this study which was initiated on the basis of a grant from the Milton Fund of Harvard University.

published under *Caryophyllus* Linn. and this generic name has not been used by any botanist since 1874 except for W. F. Wight's transfer of *Eugenia malaccensis* Linn. to *Caryophyllus malaccensis* Wight, Contr. U. S. Nat. Herb. **9**: 217. 1905. In *Syzygium* Gaertner about 300 binomials have already been published and about 230 in *Jambosa* de Candolle. Were *Caryophyllus* Linn. to be accepted to replace both *Syzygium* Gaertner and *Jambosa* de Candolle, an inordinate number of new combinations would have to be made. To avoid this necessity we recommend that action be taken at the next botanical congress to conserve *Syzygium* Gaertner (1788) against *Caryophyllus* Linn. (1754), for those botanists who elect to follow the International Code, and for those who elect to consider *Syzygium* Gaertner and *Jambosa* de Candolle congeneric and generically distinct from *Eugenia* Linn. As Alston has widened the concept of *Syzygium* to include *Jambosa*, we do not consider the conservation of *Jambosa* de Candolle (1828) against *Jambos* Adanson (1763) has any bearing on the case.

*Caryophyllus* Tournefort (1700) = *Dianthus* Linn. (Caryophyllaceae) was used in a totally different sense than *Caryophyllus* Linn. (1754) (Myrtaceae), by Miller (1754) and Moench (1794) who accepted it in the Tournefortian application. This does not, however, in any way invalidate the use of *Caryophyllus* Linnaeus in the sense that the latter used it, if one wishes to follow strict priority (and by so doing disregard the real purpose of the rules, i. e., the aim at fixity of names and the avoidance of all useless creation of names) and transfer several hundred binomials from *Eugenia* Linn., *Jambosa* DC. and *Syzygium* Gaertn. to *Caryophyllus* Linn.

From Linnaeus' time up to the present, approximately 2500 species in the New and the Old World have been described as or transferred to *Eugenia* Linn. In this assemblage there has been little agreement among botanists as to the generic limits. However, it may be stated that the modern concepts are outgrowths or modifications derived from two distinctly basic works: de Candolle, Prodr. **3**: 259–288. 1828, and a quarter of a century later, Wight, Ill. Ind. Bot. **2**: 8–18. 1841. De Candolle's conclusions are drawn from a survey of the group as a whole (insofar as it was then known), and Wight's treatment is from a geographic point of view. The former regarded the complex as consisting of five genera, *Syzygium* Gaertn., *Caryophyllus* Linn., *Acmena* DC., *Eugenia* Linn., and *Jambosa* DC. The latter adopted a broader generic concept, placing all five of the genera de Candolle recognized as integral parts of *Eugenia* Linn. Since that time, owing to the growing complexity and unwieldiness of the aggregate, it has been easier and perhaps more satisfactory at least for local botanists, to follow Wight's initiative and to handle the species geographically rather than in a monographic sense. This approach is further supported by the fact that a large proportion of the species are of restricted geographic distribution. Nevertheless, in a survey of a limited part of this group, constant watchfulness is essential lest these supposedly endemic species actually occur in geographically related areas, and also lest a lack of balance should unwittingly creep into the evaluation of characters.

To give some graphic idea of the species development in *Eugenia, sensu latiore*, and their endemism in various parts of the Old World tropics, the following tabulation has been prepared from the sources indicated. This tabulation has been based on *Eugenia* in the broader sense because most of the more modern publications on the Old World species have been issued on this basis, exceptions being the work of Diels, of Alston, and that of our own.

| | Total species and varieties | Approximate percentage of endemism |
|---|---|---|
| Ceylon[1] | 43 | 67% |
| India[2] (excluding the Malay Peninsula and Ceylon) | 85 | 53% |
| Siam[3] | 90 | 26% |
| Indo-China[4] | 68 | 47% |
| China[5] | 49 | 55% |
| Malay Peninsula[6] | 141 | 60% |
| Borneo[7] | 165 | 63% |
| Java[8] | 70 | 45% |
| Philippines[9] | 182 | 81% |
| New Guinea[10] | 117 | 85% |

A glance over the above tabulation shows that the broader concept of *Eugenia* has been retained by most of the botanists concerned with the group as it occurs

[1] Alston in Trimen, Handb. Fl. Ceyl. **6** (Suppl.): 112–120. 1931.
[2] Duthie in Hooker f. Fl. Brit. Ind. **2**: 470–506, 1878–1879.
[3] Craib, Fl. Siam. Enum. **1**: 631–667. 1931.
[4] Gagnepain in Lecomte, Fl. Gén. Indo-Chine **2**: 796–844. 1920–21.
[5] Merrill & Perry, Jour. Arnold Arb. **19**: 203–247. 1938.
[6] Ridley, Fl. Malay Pen. **1**: 718–755. 1922, **5**: 308, 309. 1925.
[7] Merrill & Perry, Jour. Arnold Arb. **18**: 331–340. 1937, **19**: 11–15. 1938, and this paper.
[8] Koorders & Valeton Meded. Lands Plant. **40**: 379–414. 1900 (Bijdr. Boomsoort. Java **6**: 379–414).
[9] Merrill Enum. Philip. Fl. Pl. **3**: 156–180. 1923.
[10] Diels, Bot. Jahrb. **57**: 379–414. 1922; Ridley, Trans. Linn. Soc. Bot. **9**: 44–49. 1916.

in the Old World tropics. Earlier it had been accepted by A. Gray, Bot. U. S. Expl. Exped. **1**: 509. 1854, and by Bentham & Hooker, Gen. Pl. **1**: 718. 1865. Of these, Wight is the only one who appears to have tried to evaluate the structure of the embryo as a generic character. He dismissed it somewhat summarily, probably on account of the paucity of the fruiting collections then available. A. Gray, with but few collections at his disposal, inclined toward Wight's point of view, and Bentham, although he discussed the embryo with the other differential features, warned against its use as the embryos were so rarely met with. Even as late as 1909, Dr. C. B. Robinson, Philip. Jour. Sci. Bot. **4**: 338, noted, "One direction, along which it is proposed to make future investigations, is the nature of the seed. . . . Very few Philippine species are yet known in fruit, and such results as have been obtained do not warrant generalizations." Following the history of the genus we see how, owing to the rarity of fruiting collections accumulated or accumulating, emphasis came to be placed on floral rather than on fruiting characters; yet, both are essential for the elucidation of this difficult genus.

Contemporaneous with this polymorphous concept of *Eugenia* Linn. we find the contrasting limited one supported also by able men. Dealing particularly with the Malaysian region are Korthals, Nederl. Kruidk. Arch. **1**: 198–205. 1847, Blume, Mus. Bot. Lugd.-Bat. **1**: 84–109, 113–125. 1849, and Miquel, Fl. Ind. Bat. **1** (1): 407–468. 1855, who distributed the species into several genera. In fact, before the close of the past century no less than thirty-six generic names had been proposed for this or that group, distinguished from *Eugenia* Linn. by this or that character or combination of characters. All of these have, at one time or another, been reduced to *Eugenia* Linn. Of the proposed segregates very few of the units except *Jambosa* de Candolle and *Syzygium* Gaertner have been accepted by other than those botanists who proposed them.

Since Niedenzu's attempt (Engler & Prantl, Nat. Pflanzenfam. **3** (7): 78–86. 1893) to delimit genera in this group there has been a growing tendency among botanists within the present century, more often dealing with a limited number of species, to follow him in the recognition of *Eugenia* Linn. largely for American forms, and *Jambosa* DC. and *Syzygium* Gaertner for most of the Old World species. Some authors, such as Diels and Gamble, have recognized smaller entities in addition to the larger *Jambosa* and *Syzygium* groups. Thus in 1922 Diels, Bot. Jahrb. **57**: 356–426. 1922, in his treatment of the Papuan species placed most of them in *Jambosa* and *Syzygium*, recognized *Jossinia*, and correctly transferred *Xenodendron* Lauterb. & K. Schum. (i. e. *Acmena* DC.) from the Lecythidaceae to the Myrtaceae and corrected its original erroneous description. Gamble in treating the Madras species in 1919, recognized *Eugenia* with ten species, *Jambosa* with ten, *Syzygium* with 21, and proposed the monotypic segregate genus *Meteoromyrtus* to take *Eugenia wynaadensis* Bedd. In the literature concerned, no one, much less Niedenzu, appears to have set forth any adequate reasons for maintaining *Syzygium* and *Jambosa* as generic entities distinct from each other; they certainly cannot be distinguished by the floral characters indicated by Niedenzu. With a reasonable degree of certainty the American species can be distinguished from most of the Old World species by the type of the inflorescence, but we find no valid reason to separate *Syzygium* from *Jambosa*. Alston, in treating the Ceylon species in 1931, reduced *Jambosa* to *Syzygium* recognizing 28 species of *Syzygium* and 21 species of *Eugenia* in Ceylon.

From the general results of our studies to date we are in closer agreement with Alston than with any other recent author. We believe that, whereas the bulk of the Old World species can be distinguished generically from the New World representatives, there is no possible method of distinguishing *Jambosa* from *Syzygium*, but that there are within the Old World complex of *Eugenia* at least two other groups deserving of generic rank. Thus, as between those who recognize *Eugenia*, *Jambosa* and *Syzygium* as valid genera, we take an intermediate position. Those who have treated large numbers of species have usually failed to find constant tangible distinguishing characters and have automatically accepted *Eugenia* in the wider sense, following the Bentham and Hooker f. concept; others, more or less automatically have followed Niedenzu apparently without a critical examination of the data on which his segregation was based. The matter of convenience has become a factor, for *Eugenia* with approximately 2500 published binomials has become unwieldy in the extreme.

In view of the differences of opinion, manifest to anyone who considers the group at all, we began our study of *Eugenia*, as that generic name has been interpreted in the wider sense, at the same time attempting to evaluate all characters without prejudice with view to determining if characters really existed by which smaller groups could reasonably well be delimited. After an extensive consideration

of the fruit-, seed-, and flower-characters we find it possible to separate most of the Old World species of *Eugenia* from those of the New World on the basis of seed-characters, with at least one floral character largely supporting this segregation.

About two-thirds of the Chinese species and one-half of the Bornean ones available for study are represented by fruits in some stage of development. We have not confined our consideration of fruit- and seed-characters to the Chinese and the Bornean species, however, but have examined many collections from various other parts of the Old World tropics as well as from tropical America. In a large part of the Old World fruiting material we find that the dried fruit is not too easily broken, and, when opened, the embryo (not the entire seed) falls out leaving the roughish seed-coat more or less loosely adhering to the pericarp; the embryo has two distinct cotyledons usually attached near the middle of the opposing faces which conceal the hypocotyl within. These are the important characters of *Syzygium* Gaertner, not the calyptrate corolla by which it has been so constantly characterized since de Candolle pointed out that distinction. It should be recalled that *Syzygium* Gaertner was established primarily on fruiting rather than on floral characters, and, after we had examined the fruits of some eighty Old World species, Gaertner's description, "Int. nullum; s. cum bacca conferruminatum & a semine per maturitatem sponte secedens. . . . Emb. dicotyledoneus, figurâ & magnitudine seminis. *Cotyl.* hemisphaericae, subinaequales, carnosae, maximae. *Rad.* conica, parva, cotyledonum superficiei internae, paulo infra medium inserta, & ab eis penitus occultata; in maturo fructu incerti situs," appeared particularly significant.

In the New World species the pericarp is easily crushed (thinner than in most of the fruits examined among the Old World species), the seed is free, the testa is smooth, chartaceous to cartilaginous and mostly lustrous, and the cotyledons are mechanically inseparable, i. e., they have grown together in such a way that often the line of their opposing faces is scarcely distinguishable. Some of these characters seem to have been submerged in the overwhelming emphasis on the floral features since de Candolle's time, for he made a distinct effort to clarify confused concepts in the "MYRTÉES," Dict. Class. Hist. Nat. **11**: 406. 1827 (preprint, 1826). In defining *Eugenia* Linn. *sensu stricto*, he stated, "leur embryon offre une très-petite radicule souvent à peine visible, et leurs cotylédons épais, charnus, remplis de vésicules d'huile essentielle, et tellement soudés ensemble qu'on me peut les séparer, et que même le plus souvent on aperçoit à peine leur ligne de jonction. Cette structure leur a fait donner le nom de fausse monocotylédone." Also, p. 402, he wrote, "l'embryon semble monocotylédone, parce que les deux cotyledons sont épais, charnus et soudés très-intimement en un seul corps."

In addition to these differences in the seed which we believe to be good diagnostic generic characters there are those of the flowers which are much less definitely marked, the limb of the calyx is not so prolonged as in the material with which we have been working, and the stamens are much less incurved in the bud. The inflorescence too, is centripetal with the 1-flowered pedicels solitary, clustered, or in a short raceme (a leafless branch); whereas, in the large part of the Old World species the inflorescence is centrifugal with the panicles branching by threes or with secondary cymes.

We have not been able to find any single constant character or any combination of characters by which *Jambosa* may be distinguished from *Syzygium*. The extremes are amply distinct in various characters, as, the size of the flower, conspicuous or inconspicuous staminal disk, separate and cohering petals, cotyledons with concave or with interlocking faces, and long and short hypocotyl. We have found all possible intergrades between entirely free and separate petals, loosely to closely imbricate but not united ones, and entirely united calyptrate petals. As for the other characters enumerated above, we are heartily in accord with Dr. C. B. Robinson's statement (Philip. Jour. Sci. Bot. **4**: 338. 1909) regarding the Philippine *Jambosa* and *Syzygium*, that "all these characters, except those drawn from the corolla are, even superficially, matters of degree." Dr. L. Diels (Bot. Jahrb. **57**: 379. 1922) furnishes corroborative evidence in his statement regarding the Papuan representatives. He says: "Eine Scheidung von *Jambosa* und *Syzygium*, die sich überall scharf durchführen liesse, halte ich für unmöglich." Admitting this, we are at a loss to see the advantage of maintaining two genera, the numerous species in both of which must be thoroughly scrutinized for any region whence one is making identifications in either "genus." A single genus at least offers the possibility of bringing like units together in a key and in a single serial arrangement for comparisons. In accepting the genus *Syzygium* as distinct from *Eugenia*, we abandon the use of *Eugenia* Linn. *sensu latiore*, the name under which many of our Bornean binomials have been published, and direct attention to the reasonably

marked genera which take care of the species segregated as smaller units. We find *Acmena*[11] de Candolle (*Xenodendron* Lauterb. & K. Schum.) may be readily distinguished by anther- and by fruit-characters, and *Cleistocalyx*[12] Blume by its constantly calyptrate calyces. In Borneo the former is represented by two species, the latter by six, and *Eugenia* proper by a single species.

Merrill's enumeration of the Bornean species of *Eugenia* (Enum. Born. Pl. 425–435. 1921) has given us ready access to the references in Korthals', Blume's and Miquel's publications. The carefully compiled synonymy, ranges, and cited specimens have also been indispensable to our study. The most recent range extensions and new species are described in Univ. Calif. Pub. Bot. **15**: 216–222. 1929 (Merrill: Plantae Elmerianae Borneenses) and Jour. Bot. **68**: 10–17, 33–37. 1930 (Ridley: Malayan Myrtaceae).

Of the 156 species of *Syzygium* which we record from Borneo, only 58 are known elsewhere. Thirty-five are represented in the Malay Peninsula, 22 in Sumatra, 18 in Java, 12 in the Philippine Islands (chiefly Palawan), 11 in Siam, 6 in Burma, and 5 in Indo-China. Four of these, *S. Jambos*, *S. aqueum*, *S. malaccense* and *S. samarangense*, are widely cultivated. Six others, *S. fastigiatum* (incl. *E. bracteolata* Wight), *S. polyanthum*, *S. syzygioides* (*E. cymosa* Auct., non Lam.), *S. pycnanthum* (*E. densiflora* DC.), *S. pyrifolium*, and *S. zeylanicum*, all have a very broad range often extending from Siam and Indo-China southward into Malaysia. Again, *S. antisepticum*, *S. grande*, *S. palembanicum*, *S. myrtifolium* and *S. incarnatum* are almost as extensively distributed. The remaining species have a more restricted occurrence. Out of this growing assemblage we have tried to bring some order and to fix the nomenclature of some of the older species. Many of them we still do not understand very well.

In spite of the fact that we are reducing *Jambosa* to *Syzygium*, owing to the many species intermediate between the extremes it has not seemed feasible at present to retain them as sections. We believe, however, when enough supplementary material showing both flowers and fruit of the species has accumulated, it will eventually be possible to find correlative characters sufficient to define sections. Merely by way of suggestion we point out that, in the species showing fruiting characters, the embryos might be divided into two groups: cotyledons with concave inner faces and minute hypocotyl; and, cotyledons with more or less interlocking faces and a long hypocotyl (i. e. extending from the point of attachment near the centre of the inner face of the cotyledon to the periphery). The first is the predominant type. The second is found in practically all the representatives of the group with a glaucous calyx (Miquel's *Jambosa* sect. *Leptomyrtus*), it is also characteristic of those species with somewhat concave and persistent bracts on the inflorescence as well as of some other species. Another suggestion of alliance is in a small group of species which have a thickish and perhaps spongy pericarp; in some of these the ovary is 3-(sometimes 4-) loculed, but our material is not sufficiently plentiful to ascertain if this be a constant feature.

Briefly glancing over the characters available for the discrimination of the species, we find that there are a few shrubs in contrast to many trees, but all too often the collector has given no indication of the habit. The branchlets vary from distinctly angled to terete, and also in the color of the bark. The leaf-arrangement is too constant to offer any distinctive characters but the petiole is a useful feature. In some species the leaves are sessile and occasionally auriculate-cordate; sometimes too the petiole is thickish and possibly corky appearing more like a part of the branch than the leaf-stalk. The blade affords the best foliar characters. The texture is fairly significant, in some species being chartaceous (thin but stiffish), in others coriaceous and again in others thick and rigid. The nature of the venation is very conservative, but too often the difference in the plan of the veins is not easily expressed. The glandular punctation and the difference in size of the glands is often a helpful distinction. The inflorescence is very important in specific classification. Its strongest characters are the relative length and position, the size of the flower, the shape of the calyx, the large and persistent calyx-lobes, the smaller and caducous ones, and the undulate or truncate calyx-limb. The corolla is sufficiently unstable to be treated with discretion, for every possible intergrade from entirely free petals to coherent ones forming a calyptra occurs. The stamens are almost too much alike to be of much diagnostic value. There is such a gradual reduction in the thickened staminal disk that it is scarcely of value in the differentiation of close species. The fruit

[11] **Merrill, E. D.** and **L. M. Perry.** A synopsis of Acmena DC., a valid genus of the Myrtaceae. Jour. Arnold Arb. **19**: 1–20. 1938.

[12] **Merrill, E. D.** and **L. M. Perry.** Reinstatement and revision of Cleistocalyx Blume (including Acicalyptus A. Gray), a valid genus of the Myrtaceae. Jour. Arnold Arb. **18**: 322–343, t. 215. 1937.

in some species is very distinct, but until it is better represented in reference-collections it can scarcely be used as a key-character to any great extent.

We have had the privilege of examining the Indo-Malaysian collections of *Syzygium*, *Jambosa*, and *Eugenia* in the herbaria of the Arnold Arboretum, the Gray Herbarium, the New York Botanical Garden, the Bornean material and a few selected Javan types from the Botanical Garden at Buitenzorg; these have been supplemented by special loans from the herbaria at Leiden, Utrecht, Berlin, Kew, and Washington. We here express our appreciation to the Directors of these herbaria for these favors, and our particular thanks to Professor H. J. Lam for the loan of a number of Korthals' types. We are also indebted to Professor H. Humbert, Museum national d'histoire naturelle, Paris, for a photograph of *E. cymosa* Lam. The senior author began this study in 1930, examining types at the Kew and the Leiden herbaria, recording critical notes and carbon imprints of all the available types. Pressure of other duties prevented a continuation of the work, and it was not until after his transfer to Harvard University in 1935 that it was possible to continue the intensive study of the assembled material. In 1936 a generous grant from the Milton fund of Harvard University enabled us to study first certain generic segregates from the Eugenia[13] complex, to revise the Chinese species of the entire family Myrtaceae, and to initiate work on this major paper on Bornean *Syzygium*. We have been enabled to complete the work through a grant made by the American Philosophical Society of Philadelphia from the Penrose fund of that organization, supplemented by certain unrestricted funds of the Arnold Arboretum. To those who have made this work possible through the loan of essential material and by making generous financial grants to its support, the authors wish to express their deep appreciation and sincere thanks.

### Key to Genera Segregated from Eugenia Sensu Latiore

1. Embryo apparently undivided.
2. Seed-coat smooth and free from the pericarp; embryo apparently homogeneous within; inflorescence of 1-flowered pedicels, solitary or clustered or in a short raceme; anther-sacs parallel, opening longitudinally.....1. *Eugenia.*
2. Seed-coat loosely or closely adhering to the pericarp; embryo heterogeneous within (i. e. internally much lobed); inflorescence paniculate; anther-sacs divaricate, opening by a terminal slit or pore.....2. *Acmena.*

1. Embryo divided, i. e. with distinct cotyledons; seed-coat roughish, loosely or closely adhering to the pericarp; anther-sacs parallel, opening longitudinally.
2. Calyx not calyptrate, lobes distinct both in the bud and in the flower.....3. *Syzygium.*
2. Calyx calyptrate, i. e. not at all lobed, the entire upper part circumscissile and falling as a more or less indurated lid or calyptra.....4. *Cleistocalyx.*

Only the species of *Eugenia* and *Syzygium* are considered in this article. Our synopses of *Acmena* and *Cleistocalyx* have already appeared as separate papers (Jour. Arn. Arb. **18**: 322–343, *pl. 215.* 1937; **19**: 1–20. 1938). The Bornean representatives of these two genera appear at the end of this paper in the excluded species.

### 1. **Eugenia** Linnaeus

We have, as already indicated above, accepted *Syzygium* Gaertner (including *Jambosa* de Candolle) as the proper generic name for most of the Old World species that have been placed in *Eugenia*, restricting *Eugenia* to that large group characteristic of tropical America but with some representatives in the Old World tropics. *Eugenia*, as thus restricted, has one representative in Borneo.

**Eugenia kangeanensis** Val. Ic. Bog. **4**: 107. *t. 333.* 1912.

British North Borneo, Pababag Simporno, *Osman 89* (*B. N. B. For. Dept. 2344*). Borneo, Kangean Islands.

Although we have no authentic material with which to compare this collection, it corresponds closely to the plate and description of Valeton's species, which was described from the Kangean Islands.

### 2. **Syzygium** Gaertner

**Syzygium** Gaertn. Fruct. **1**; 166, *t. 33.* 1788; DC. Prodr. **3**: 259. 1828; G. Don, Gen. Syst. **2**: 848. 1832; Wight & Arn. Prodr. **1**: 329. 1834; Wight, Ic. **1**: *t. 73.* 1838 (in explanation as *Syzygeum*); Steud. Nom. ed. 2, **2**: 657. 1841 (as *Syzigium*); Brongn. Enum. Gen. 186. 1843 (as *Zizygium*); Walp. Rep. **2**: 178. 1843; Korth. Nederl. Kruidk. Arch. **1**: 202. 1847; Miq. Fl. Ind. Bat. **1**(1): 446. 1855; Muell. Ann. **4**: 833. 1857; Thwaites, Enum. Pl. Zeyl. 116. 1859; Benth. Fl. Hongk. 118. 1861; Brongn. & Gris, Bull. Soc. Bot. France, **12**: 182. 1865; Teijsmann & Binn. Cat. Hort. Bog. 246. 1866; Niedenzu

[13] **Merrill, E. D.** and **L. M. Perry.** Reinstatement and revision of Cleistocalyx Blume (including Acicalyptus A. Gray), a valid genus of the Myrtaceae, Jour. Arnold Arb. **18**: 322–343, t. 215. 1937.

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*Caryophyllus* Linn. Gen. Pl. ed. 5, 232 (no. 594). 1754 (Type *C. aromaticus* Linn.).

*Jambos* Adans. Fam. Pl. **2**: 88. 1763.

*Jambolifera* sensu Houtt. Nat. Hist. II. **2**: 272. 1774, non Linn.

*Opa* Lour. Fl. Cochinch. 308. 1790.

*Calyptranthus* Blume, Bijdr. 1089. 1826.

*Jambosa* DC. Prodr. **3**: 286. 1828; G. Don, Gen. Syst. **2**: 867. 1832; Wight & Arn. Prodr. 332. 1834; Steud. Nom. ed. 2, **1**: 796. 1840; Walp. Rep. **2**: 191. 1843; Hassk. Cat. Hort. Bog. Alt. 261. 1844; Korth. Nederl. Kruidk. Arch. **1**: 199. 1847; Blume, Mus. Bot. Lugd.-Bat. **1**: 90. 1849; Miq. Fl. Ind. Bat. **1**(1): 407. 1855; Muell. in Walp. Ann. **4**: 841. 1857; Thwaites, Enum. Pl. Zeyl. 115. 1859; Brongn. & Gris, Bull. Soc. Bot. France, **12**: 181. 1865; Teijsmann & Binn. Cat. Hort. Bog. 247. 1866; Niedenzu in Engler & Prantl, Nat. Pflanzenfam. **3** (7): 83. 1893; K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee, 470. 1901; Lauterb. in Lorentz, Nova Guinea, **8**(4): 850. 1912; Thonner, Fl. Pl. Africa, 392. 1915; Gamble, Fl. Madras, **1**: 472. 1919; Diels, Bot. Jahrb. **57**: 379. 1922 (Type *J. vulgaris* DC.).

*Malidra* Raf. Sylv. Tellur. 107. 1838. (Type *Eugenia aquea* Burm. f.).

*Cerocarpus* Hassk. Flora, **25**: Beibl. 2, 36. 1842; Cat. Hort. Bog. Alt. 262. 1844 (Type *Eugenia aquea* Burm. f.).

*Syllysium* Meyen & Schauer, Nov. Act. Nat. Cur. **19**: Suppl. **1**: 334. 1843 (Type *Syllysium buxifolium* Meyen & Schauer).

*Clavimyrtus* Blume, Mus. Bot. Lugd.-Bat. **1**: 113. *t. 49*. 1849 (Type *Myrtus glabrata* DC. = *E. Clavimyrtus* K. & V. = *E. Blumeana* O. Ktze.).

*Microjambosa* Blume, op. cit. 117 (Type *Jambosa conferta* Korth.).

*Strongylocalyx* Blume, op. cit. 89, *t. 54*. (Type *Jambosa leptostemon* Korth.).

*Macromyrtus* Miq. Fl. Ind. Bat. **1**(1): 439. 1855 (Type *M. javanica* Miq.).

For reasons given in the introductory part of this paper we have accepted *Syzygium* as the proper generic name for most of the Old World species that have hitherto been placed in *Eugenia*, including *Jambosa*. The essential characters of this group are so well known that we do not consider it necessary or even desirable to prepare a technical generic description which would, at most, merely repeat the characters given in many of the references above.

## Key to the Bornean Species of Syzygium

The following arrangement commences with the most *Jambosa*-like forms and ends with the species of *Syzygium* in its narrower sense.

1. Individual flowers subtended by two decussate and approximate pairs of bracts.
2. Flowers not glaucous or pruinose on drying.
3. Inflorescence in compact heads.
4. Primary venation of the leaves more prominent on the lower surface, secondary venation ± obscure.
5. Bracts as long as the flowers; petioles ± 1.5 cm. long; dried leaves dark brown.....1. *S. Hoseanum.*
5. Bracts shorter than the flowers; petioles ± 0.6 cm. long; dried leaves pale olivaceous.....2. *S. cephalophorum.*
4. Primary venation of the leaves about equally prominent on both surfaces, secondary venation scarcely less distinct than the primary; bracts shorter than the flowers 3. *S. capitatum.*
3. Inflorescence paniculate.
4. Ultimate branches of the inflorescence puberulent; leaves elliptic; primary veins ascending-spreading 4. *S. rosulentum.*
4. Ultimate branches of the inflorescence glabrous; leaves obovate, primary veins ascending.
5. Branchlets distinctly 4-angled, at times strongly margined; inflorescence axillary and terminal, also lateral; bracts ± 2 mm. in diameter; fruit urceolate 5. *S. kihamense.*
5. Branchlets terete or sulcate; inflorescence lateral or terminal on last year's branchlets; bracts 1 mm. in diameter; fruit cyathiform.....6. *S. petakense.*
2. Flowers usually glaucous or pruinose on drying (sometimes blackish).
3. Leaves large (9–11 cm. long); inflorescence with branches 5–10 mm. long.....26. *S. multibracteolatum.*
3. Leaves small (rarely more than 2 cm. long); inflorescence in short fascicles.
4. Leaves elliptic to obovate-elliptic, rounded at the apex; sepals less than 1 mm. long.....35. *S. gaultherioides.*
4. Leaves ovate to ovate-lanceolate, tapering obtusely at the apex; sepals 1 mm. or more long..36. *S. perparvifolium.*
1. Individual flowers subtended by one pair of bracts, these conspicuous or inconspicuous.

2. Bracts and bracteoles of the inflorescence broadly ovate, concave or slightly keeled, somewhat coriaceous and persistent.
3. Leaves narrowly lanceolate.
4. Primary veins 2–3 mm. apart, spreading-ascending; secondary veins almost as prominent (leaves with close venation).....7. *S. Odoardoi.*
4. Primary veins 6–10 mm. apart, subtransverse; secondary veins obscure.....8. *S. neriifolium.*
3. Leaves broader.
4. Leaves oblong, copiously pellucid-punctate, verruculose above, obscurely veined; inflorescence short (2–3 cm. long).....9. *S. Moultonii.*
4. Leaves cuneate- or oblong-lanceolate to oblanceolate; inflorescence usually long (up to 12 cm.).
5. Leaves oblong-obovate to oblanceolate, apex obtuse or rounded with a short broad acumen; flowers less than 1 cm. long.....10. *S. fastigiatum.*
5. Leaves broadly cuneate-obovate, apex rounded-truncate or retuse; flowers over 1 cm. long....11. *S. cuneiforme.*
2. Bracts and bracteoles of inflorescence various (usually not broadly ovate), mostly deciduous and inconspicuous.
3. Inflorescence lateral (below the new leafy shoots).
4. Leaf-base cordate, subamplexicaul or auriculate.
5. Flower-buds thick-clavate, usually in 3's at the apex of the branches of the inflorescence.
6. Branchlets 4-angled; intramarginal vein 1.5–2 mm. within the margin.....12. *S. tetragonocladum.*
6. Branchlets ± compressed; intramarginal vein 3.5–4 mm. within the margin.....13. *S. polycephalum.*
5. Flower-buds obconical, single at the apex of the branches of the inflorescence (or perhaps better considered as flowers long-pedicellate, in clusters from a very short rachis).....14. *S. penibukanense.*
4. Leaf-base acute to subcordate, not subamplexicaul or auriculate.
5. Flowers large, the buds at least 12 mm. long.
6. Leaf-base rounded to subcordate.
7. Leaves elliptic to ovate-elliptic, rigid-coriaceous; inflorescence strictly lateral; cup-like part of the calyx strongly flattened after anthesis; flowers single at the apex of the branches of the inflorescence 15. *S. dasyphyllum.*
7. Leaves elliptic to ovate-elliptic, coriaceous; inflorescence axillary and terminal as well as lateral; cup-like part of the calyx not particularly flattened after anthesis; flowers 1–3 at the apex of the branches of the inflorescence.
8. Primary veins 15–20, widely spreading, only slightly interarching to join the submarginal vein about 3 mm. within the margin.....55. *S. Endertii.*
8. Primary veins 8–15, spreading-ascending, arcuately anastomosing to form the submarginal vein 4–7 mm. within the margin.....56. *S. samarangense.*
6. Leaf-base cuneate to acute or obtusish 16. *S. malaccense.*
5. Flowers smaller, the buds less than 1 cm. long.
6. Petiole pale or whitish (possibly corky), the epidermis soon appearing flaky.....17. *S. peregrinum.*
6. Petiole dark, the epidermis not noticeably loose.
7. Inflorescence compact, cymes fascicled, the axes not exceeding 7 mm. in length; leaves glandular-punctate 18. *S. sandakanense.*
7. Inflorescence open, cymes (if in clusters) spreading, the axes 1.5–7 cm. long; leaves copiously glandular-punctate (obscure in *S. aegiceroides* Korth. on account of the very dark color of the dried leaves).
8. Leaves obovate-elliptic with an exceedingly short and obtuse acumen; venation very inconspicuous; inflorescence at most scarcely 2 cm. long 19. *S. aegiceroides.*
8. Leaves obovate-oblong to oblong-elliptic with a longer acumen; venation obvious; inflorescence 2.5–7 cm. long.
9. Flower-buds not more than 3.5–4 mm. long, usually in 3's at the tips of the branches of the inflorescence; primary veins 6–10 (–15), obliquely spreading.....20. *S. polyanthum.*
9. Flower-buds 5–6 mm. long, usually single at the tips of the branches of the inflorescence; primary veins 10–15, obliquely ascending....21. *S. leptostemon.*
3. Inflorescence axillary and terminal.
4. Branchlets of the inflorescence and often the younger foliar branchlets somewhat hirsute to puberulent.
5. Leaf-base cuneate or retuse, not rounded; branchlets 4-angled (sometimes terete or sulcate), puberulent.
6. Inflorescence compact, scarcely 1 cm. long 22. *S. Jaherii.*
6. Inflorescence open, up to 7 cm. long.
7. Primary veins of the leaves 1–5 mm. apart; leaves oblong; branchlets of the inflorescence densely puberulent.....23. *S. castaneum.*
7. Primary veins of the leaves 10–15 mm. apart; leaves lanceolate- to obovate-elliptic; branchlets of the inflorescence granular-puberulent. 93. *S. leucocladum.*
5. Leaf-base rounded or subcordate; branchlets terete or compressed.
6. Pedicels and young branchlets puberulent; leaves obovate-oblong.....24. *S. papillosum.*
6. Pedicels and branchlets somewhat hirsute or hirtellous; leaves ovate-oblong.....25. *S. hirtum.*
4. Plant glabrous.
5. Calyx usually drying glaucous or pruinose (or, if drying greenish, calyx with five lobes loosely imbricated in the bud); flower-buds 5–6 (–8) mm. long.
6. Ultimate branchlets coarse (2 mm. or more in diameter) and obviously winged; leaves 4–14 (av. 7–9) cm. long.
7. Leaves obtuse or obtusely short-acuminate at the apex, thick-coriaceous, venation somewhat obscure; inflorescence with branches 5–10 mm. long, bracts (apparently more than 2 subtending each flower) persisting.....26. *S. multibracteolatum.*
7. Leaves long-acuminate at the apex, coriaceous, primary veins obvious on the lower surface; inflorescence inconspicuously branching (branches ± 1 mm. long); bracts ± deciduous.....27. *S. pterophorum.*
6. Ultimate branchlets finer (usually less than 2 mm. in diameter), strongly margined to terete; leaves 0.5–9 cm. (rarely averaging more than 5 cm.) long.
7. Branchlets terete or subcompressed; inflorescence open or compact, with definite rachis.
8. Flowers pustular or somewhat verrucose; leaves slightly, if at all, punctate above. 28. *S. zeylanicum.*
8. Flowers smooth or minutely pustular, mostly longitudinally wrinkled; leaves shallowly and minutely punctate above.....29. *S. antisepticum.*

7. Branchlets ± 4-angled, often strongly margined.
8. Inflorescence open or compact, with definite rachis.
9. Leaves 2–10 cm. long.
10. Flowers minutely pustulate to somewhat verrucose.
11. Leaves (av. 4–6 cm. long) ovate to lanceolate, acute or obtusely acuminate at the apex; inflorescence usually open-branched, terminal and axillary; flowers pustulate to somewhat verrucose.....28. *S. zeylanicum.*
11. Leaves (av. 1.5–3 cm. long) lance-elliptic to rounded-ovate or orbicular, obtusely acuminate or rounded or subemarginate at the apex; inflorescence usually compact, chiefly terminal; flowers minutely pustulate. 30. *S. kinabaluense.*
10. Flowers smooth (not at all verrucose), oftenest longitudinally wrinkled.
11. Angles of the branchlets strongly margined; leaves lanceolate to lance-ovate, obtuse or rounded at the apex, rarely punctate; floral bracts ± persistent.....31. *S. bankense.*
11. Angles of the branchlets not strongly margined; leaves ovate, obtusely acuminate, sparsely punctate; floral bracts caducous
32. *S. ovatifolium.*
9. Leaves rarely more than 1.5 cm. long (except in *S. kinabaluense*); angles of the branchlets strongly margined.
10. Leaves averaging 1.5–3 cm. long but sometimes smaller; flower-buds 6–8 mm. long
30. *S. kinabaluense.*
10. Leaves 0.5–1.5 cm. long; flower-buds 4–5.5 mm. long.
11. Leaves narrowly elliptic or slightly obovate, rounded or obtuse at the apex; venation fairly obvious beneath; petiole 1–2 mm. long; flower-buds ± 4 mm. long.....33. *S. exiguifolium.*
11. Leaves narrowly ovate, rounded to acutish at the apex, thickish, even the midrib at times impressed on both surfaces; petiole ± 1 mm. long; flower-buds ± 5 mm. long...34. *S. polycladum.*
8. Inflorescence in short dense fascicles, not elongating to show the rachis.
9. Leaves elliptic to obovate-elliptic, rounded at the apex; venation usually manifest on the lower surface; sepals less than 1 mm. long
35. *S. gaultherioides.*
9. Leaves ovate to ovate-lanceolate, tapering obtusely at the apex; venation (except the midrib) usually obscure; sepals 1 mm. or more long
36. *S. perparvifolium.*
5. Calyx not drying glaucous or pruinose; flower-buds 0.5–3 cm. long.
6. Apex of flower-buds immediately before anthesis 8 mm. or more in diameter.
7. Ultimate branchlets sharply 4-angled.
8. Inflorescence open, with many flowers; rachis 5–20 cm. long.
9. Leaf-base clearly auriculate-cordate; calyx-lobes ± 2.5 mm. long.....37. *S. rejangense.*
9. Leaf-base cordate, only slightly, if at all, auriculate; calyx-lobes ± 5 mm. long.....38. *S. kiauense.*
8. Inflorescence short and compact with few (1–7) flowers; rachis rarely longer than 1.5 cm.
9. Leaf-base rounded or subcordate; flowers usually not solitary.
10. Primary veins of the leaves 10–15 on either side of the midrib, spreading-ascending to subtransverse; apex of the flower-buds 1–1.5 cm. in diameter.
11. Branchlets narrowly wing-margined; leaves slightly, if at all, glandular.
12. Inflorescence axillary and terminal; flower-buds ± 1 cm. long, very short-pedicellate (pedicels ± 2 mm. long), often several in an inflorescence; calyx-lobes 3–4 mm. long; primary veins spreading-ascending....39. *S. Panzeri.*
12. Inflorescence terminal; flower-buds ± 1.5 cm. long, pedicellate (pedicels 5–10 mm. long), few in an inflorescence; calyx-lobes 5 mm. long; primary veins subtransverse
40. *S. heterocladum.*
11. Branchlets not margined; lower surface of the leaves copiously and minutely glandular
41. *S. insigne.*
10. Primary veins of the leaves 6–8, strongly ascending; apex of the flower-buds ± 2 cm. in diameter; branchlets not margined.....42. *S. Kingii.*
9. Leaf-base acute or subobtuse; flowers solitary
43. *S. monanthum.*
7. Ultimate branchlets terete or compressed (or obtusely angled in *S. ampullarium*, *S. garcinifolium*, *S. erythranthum*, and *S. Jambos*).
8. Inflorescence short and compact, rachis usually not more than 2 cm. long.
9. Leaf-base rounded or subcordate.
10. Leaves rounded-ovate, short (usually not exceeding 5 cm. long) and tending to be crowded on the branchlets.....44. *S. ampullarium.*
10. Leaves lanceolate to oblong-lanceolate or obovate-elliptic, larger (usually more than 10 cm. long).
11. Leaves with the primary veins subtransverse
45. *S. Creaghii.*
11. Leaves with the primary veins oblique.
12. Leaves ternate, sessile or subsessile; primary veins strongly ascending, 1.5–2.5 cm. apart
46. *S. mappaceum.*
12. Leaves opposite, short (or very short)-petiolate; primary veins spreading-ascending.
13. Flowers distinctly pedicellate (pedicel 2.5–3.5 cm. long, fide Koord. & Val.); leaves lanceolate.....47. *S. Blumei.*
13. Flowers sessile or very short-pedicellate (pedicel ± 2 mm. long); leaves broader.
14. Mature petioles with the epidermis ± deciduous in small flakes, abruptly joining the leaf-base; flower-buds ± 15 mm. long, somewhat gradually narrowed to the base.
48. *S. pseudoformosum.*
14. Petioles with persisting epidermis, gradually blending with midrib; flower-buds ± 11 mm. long, abruptly narrowed below the calyx-limb.....49. *S. lilacinum.*
9. Leaf-base acute or obtusish.

10. Flowers very short-pedicellate or sessile; primary veins obscure on the lower leaf-surface
50. *S. anthicum.*
10. Flowers distinctly pedicellate (pedicels ± 1 cm. long); at least the primary veins obvious on the lower leaf-surface.
11. Leaves opposite, lanceolate with a short and acute base; branchlets reddish-brown, obtusely 4-angled.....51. *S. Jambos.*
11. Leaves opposite or ternate, equally narrowed from the middle toward the base and the apex; branchlets yellowish- or grayish-brown, ± sulcate or compressed.....52. *S. medium.*
8. Inflorescence open (paniculate), axis more than 2 cm. long.
9. Leaf-base somewhat rounded.
10. Ultimate branchlets thickish and obtusely angled, ± yellowish gray.
11. Leaves small, not more than 10 cm. long, venation manifest; inflorescence with few branches.
53. *S. erythranthum.*
11. Leaves large, 12–20 cm. or more long, thick-coriaceous, sharply reticulate on the lower surface; inflorescence much branched
54. *S. garcinifolium.*
10. Ultimate branchlets slender and terete or compressed, brownish.
11. Leaves conspersely punctate above; petioles at least 1 cm. long; primary veins widely spreading; flowers not especially glandular
55. *S. Endertii.*
11. Leaves not punctate above; petioles ± 5 mm. long; primary veins spreading-ascending; flowers copiously and minutely glandular
56. *S. samarangense.*
9. Leaf-base acute or cuneate.
10. Branchlets yellowish to tawny; leaves obovate-elliptic to elliptic; base of the calyx ± angled.
11. Leaves ± flexible, primary veins slender but plainly evident, secondary venation rather obscure; flower-buds ± 1 cm. long, ± 8 mm. in diameter at the apex..57. *S. pachyphyllum.*
11. Leaves ± rigid, primary veins thicker and obvious, secondary veins distinctly manifest on both surfaces; flower-buds ± 1.5–1.8 cm. long, ± 1 cm. in diameter at the apex
58. *S. Houttuynii.*
10. Branchlets brownish or dark; leaves of varied outline but not broader above the middle; base of the calyx terete.
11. Flowers large, over 2 cm. long, few in an inflorescence; leaves lanceolate.....51. *S. Jambos.*
11. Flowers rarely more than 1.5 cm. long, several to many in an inflorescence.
12. Primary veins 10–20 pairs, anastomosing within the margin to form a definite submarginal vein; secondary reticulations usually manifest; leaves apparently not shrunk in drying.
13. Leaves lanceolate, usually with only one submarginal vein; flower-buds 10–13 mm. long
59. *S. Foxworthianum.*
13. Leaves elliptic-oblong; two submarginal veins fairly definite toward the base of the leaves; flower-buds ± 15 mm. long
60. *S. pycnanthum.*
12. Primary veins 6–8 pairs, spreading-ascending, inconspicuously anastomosing near the margin but scarcely forming a distinct submarginal vein; secondary reticulations distinct; leaves finely wrinkled as if shrunk in drying
61. *S. glanduligerum.*
6. Apex of flower-buds just previous to anthesis less than 8 mm. in diameter.
7. Flowers with definite calyx-lobes (0.5–) 1–3 mm. long.
8. Flower-buds 2.5–3 cm. long; calyx-tube long-attenuate
62. *S. Macromyrtus.*
8. Flower-buds shorter, usually not more than 2 cm. long.
9. Inflorescence sparsely flowered; flowers on filiform pedicels (or single on filiform branches) 1–2 cm. long.....63. *S. paraiense.*
9. Inflorescence several–∞-flowered; flowers sessile or short-pedicellate (pedicels up to 5 mm. long, usually not filiform).
10. Inflorescence open, rachis 2 cm. or more long.
11. Leaves sessile or subsessile.
12. Leaf-base auriculate-cordate to emarginate or rounded.
13. Branchlets sharply 4-angled; inflorescence with numerous flowers.
14. Leaves large (up to 35 cm. long), base auriculate-cordate; flower ± 1.3 cm. long
37. *S. rejangense.*
14. Leaves smaller (up to 18 cm. long, fide Koord. & Val., in our specimens 6–12.5 cm. long), base subcordate or emarginate; flowers ± 6 mm. long.....64. *S. paucipunctatum.*
13. Branchlets terete; inflorescence with few to several flowers.
14. Leaves broadly to obovately elliptic
65. *S. aqueum.*
14. Leaves lanceolate (up to 19 cm. long and 6 cm. broad).....66. *S. Beccarii.*
12. Leaves acute or obtusish at base, lanceolate (± 8 cm. long, ± 2 cm. broad)
67. *S. pauciflorum.*
11. Leaves distinctly petiolate.
12. Secondary venation practically parallel with and almost as prominent as the primary (leaves closely veined); submarginal vein usually ± 1 mm. (2 mm. in *S. chloranthum*) within the margin.
13. Sepals 0.5–1 mm. long.
14. Flower-buds about 1 cm. long.
15. Calyx-tube verruculose or minutely tuberculate.....112. *S. napiforme.*
15. Calyx-tube often minutely glandular, not verruculose (secondary venation of leaves sometimes obscure). 114. *S. fusticuliferum.*
14. Flower-buds rarely more than 6 mm. long.
15. Flowers sessile and densely crowded at the tips of very short branchlets; calyx-tube only slightly narrowed toward the base
147. *S. pachysepalum.*

15. Flowers sessile or short-pedicellate, not especially crowded; calyx-tube tapering or abruptly narrowed to pseudostipe.
16. Acumen usually not less than ⅓ the length of the blade; reticulations fine and sharply distinct on the lower surface; lower surface copiously and minutely gland-dotted.....68. *S. rostratum.*
16. Acumen rarely more than ¼ the length of the blade; reticulations not particularly fine or definite on either surface; glands sparse and ± obscure. 69. *S. syzygioides.*

13. Sepals 1–3 mm. long.
14. Leaves smallish (averaging 3 cm. long, longest in available collections 5.5 cm.) and ± crowded on the branchlets; flower-buds ± 4 mm. long.....70. *S. Myrtillus.*
14. Leaves larger (averaging not less than 5.5 cm. long in any species under this caption); flower-buds not less than 5 mm. long.
15. Inflorescence chiefly terminal (occasionally in the upper axils); leaves elliptic to lance-elliptic, usually not exceeding 10 (–12) cm. long and 5 cm. broad.
16. Inflorescence not greatly, if at all, exceeding the subtending leaves.
17. Leaves coriaceous, not at all puncticulate above; veins subtransverse, reticulations somewhat obscure 71. *S. myrtilloides.*
17. Leaves thinly coriaceous or chartaceous often minutely puncticulate above; veins obliquely spreading, reticulations usually strongly manifest 72. *S. lineatum.*
16. Inflorescence much longer (± 10 cm. long) than the subtending leaves 73. *S. caryophylliflorum.*
15. Inflorescence axillary and terminal; leaves ovate-elliptic to elliptic, 8–18 cm. long, 3–8.5 cm. broad.
16. Flower-buds globose at the apex abruptly tapering to the somewhat sulcate pseudostipe.
17. Calyx with thickish pseudostipe; fruit obscurely ribbed, cotyledons with the inner faces interlocking 74. *S. chloranthum.*
17. Calyx with slender pseudostalk (often 4-angled); fruit smooth, cotyledons with the inner faces concave. 75. *S. monticola.*
16. Flower-buds elongate-conical gradually tapering (not at all abruptly narrowed below the calyx-lobes) to the base, obscurely, if at all, ridged; reticulations closer and more definite than in *S. chloranthum* and *S. splendens* 76. *S. Lamii.*

12. Secondary venation, if distinct, not as prominent as the primary (leaves with open venation).
13. Calyx-tube with ± definite and fine ridges (flowers not surely known in *S. urceolatum*); fruit ± corrugated (not known in *S. kuchingense*).
14. Primary and intramarginal veins impressed on the upper surface, rather prominent beneath; reticulations ± obscure 77. *S. urceolatum.*
14. Primary and intramarginal veins not particularly impressed above.
15. Flower-buds clavate.
16. Calyx ± 10 mm. long; fruit strongly corrugated.....78. *S. tawahense.*
16. Calyx ± 6 mm. long; fruit faintly ribbed 79. *S. Griffithii.*
15. Flower-buds broader.
16. Flower-buds 12 cm. long, globose at the apex, gradually tapering to the base (narrowed part ± 5 mm. long) 80. *S. leucophloium.*
16. Flower-buds ± 8 mm. long, globose at the apex, abruptly tapering to a short sulcate pseudostipe.
17. Primary veins subtransverse, remote, scarcely elevated on either surface; secondary veins and reticulations indistinct.....81. *S. kuchingense.*
17. Primary veins oblique, less remote, slightly elevated on the lower surface; secondary veins and reticulations manifest, especially beneath 82. *S. palembanicum.*

13. Calyx-tube smooth, at least without definite ridges; fruit not corrugated.
14. Flower-buds 9–15 mm. long (rarely less).
15. Leaves lanceolate.
16. Leaves narrowly lanceolate, caudate-acuminate; flower-buds 4–5 mm. broad at the apex; calyx-lobes 1–1.5 mm. long; calyx-tube somewhat abruptly tapering to the pseudostipe.....83. *S. tenuicaudatum.*
16. Leaves lanceolate, acute or acuminate; flower-buds 6–8 mm. broad; calyx-lobes 2–3 mm. long; calyx-tube gradually tapering to the base.
17. Branchlets very dark-brown; leaves drying reddish-brown, texture as if slightly shrunk with drying (even the fine reticulations manifest) 61. *S. glanduligerum.*
17. Branchlets pale or yellowish-brown; leaves drying olivaceous or dull-brown; texture not visibly shrunk 59. *S. Foxworthianum.*
15. Leaves broader.
16. Calyx-tube subglobose with very short pseudostipe (± 2 mm. long) 84. *S. leptostachyum.*
16. Calyx-tube obconical or clavate to fusiform.
17. Flower-buds large, rarely less than 7 mm. in diameter at the apex, and ± 15 mm. long; calyx not fusiform.
18. Leaves with secondary venation and reticulations obscure on the lower

surface, drying a dark reddish-brown beneath.....55. *S. Endertii.*

18. Leaves with distinct secondary veins and reticulations, drying pale brown 60. *S. pycnanthum.*

17. Flower-buds rarely exceeding 6 mm. in diameter at the apex.

18. Calyx somewhat fusiform; secondary veins and reticulations inconspicuous 85. *S. fusiforme.*

18. Calyx elongate-conical or somewhat funnel-shaped; secondary veins and reticulations distinct.

19. Branchlets ± 4-angled, reddish-brown; calyx tapering to a thickish base; leaves not exceeding 10 cm. long, not particularly rigid; petiole scarcely 1 cm. long.....86. *S. Hallieri.*

19. Branchlets terete or compressed, dark grayish-brown; calyx ± attenuate at the base; leaves averaging 10 cm. or more in length, stiffish; petioles 1.5–2 cm. long.

20. Flower-bud ± constricted just below the calyx-lobes; staminal disk obtusely 4-angled; leaf-reticulations close.....87. *S. durifolium.*

20. Flower-bud not particularly constricted; staminal disk circular; leaf-reticulations lax.....88. *S. grande.*

14. Flower-buds up to 8 mm. long, usually less.

15. Buds with pseudostipe.

16. Flowers clustered (subcapitate) at the tips of the branches of the inflorescence.

17. Inflorescence axillary and terminal; leaves lanceolate, rigid, base acute; submarginal veins 2–3, the inner sharply marked; secondary venation inconspicuous 89. *S. palawanense.*

17. Inflorescence terminal and in the upper axils; leaves lanceolate to elliptic, ± flexible, base short-cuneate; submarginal veins 1–2, not so prominent; secondary venation tending to be marked.....90. *S. confertum.*

16. Flowers rarely more than in 3's at the tips of the branches of the inflorescence.

17. Leaves rarely less than 6 cm. (up to 20 cm.) long and 3 (up to 9.5) cm. broad.

18. Ovary with 3–4 locules; stamens short, not filling the cup-like limb of the calyx in bud; flowers and leaves drying reddish-brown. .114. *S. fusticuliferum.*

18. Ovary with 2 locules; stamens longer, ordinarily filling the cup-like limb of the calyx in bud; flowers usually drying dark brown.

19. Primary veins arcuately anastomosing to form the inner submarginal vein; leaves lanceolate to ovate-elliptic 91. *S. elopurae.*

19. Submarginal vein almost straight (not arcuate); leaves elliptic.

20. Branchlets ± compressed; inflorescence axillary and terminal; petioles dark-brown or blackish; calyx-tube abruptly narrowed to a pseudostipe 92. *S. pontianakense.*

20. Branchlets ± angled; inflorescence terminal; petioles ± cinereous, thickish, the epidermis showing a tendency to become flaky; calyx-tube gradually narrowed to a pseudostipe.....93. *S. leucocladum.*

17. Leaves small, rarely exceeding 5 cm. long and less than 2 cm. broad, ± obovate-elliptic, obtuse; inflorescence axillary and terminal.....94. *S. phryganodes.*

15. Flower-buds gradually tapering to the base; pseudostipe, if present, negligible.

16. Leaf-base rounded, emarginate to subcordate .....95. *S. brachypodum.*

16. Leaf-base tapering.

17. Leaves oblong-lanceolate; primary veins aciculately impressed above 96. *S. perpuncticulatum.*

17. Leaves mostly broader in proportion to the length; primary veins not particularly impressed.

18. Leaves large (up to 24 cm. long), broadly to rounded-elliptic (venation as in *S. grande*).....97. *S. megalophyllum.*

18. Leaves smaller (up to 13 cm. long), elliptic to ovate.

19. Leaves ovate, abruptly tapering to a narrow obtuse acumen ± 15 mm. long; reticulations relatively inconspicuous.....98. *S. splendens.*

19. Leaves elliptic to obovate-elliptic, apex with short (± 5 mm. long) and broad acumen; reticulations strongly marked on the upper surface. 99. *S. Steenisii.*

10. Inflorescence compact, rachis rarely exceeding 1.5 cm. in length.

11. Leaves sessile or subsessile.

12. Leaf-base distinctly cordate; axis of the inflorescence up to 1.5 cm. long; calyx-tube long and slender abruptly enlarging into the limb 100. *S. subsessilifolium.*

12. Leaf-base rounded and subcordate; axis of the inflorescence very short (± 5 mm. long); calyx-tube gradually enlarging upwards into the limb.....101. *S. lunduense.*

11. Leaves distinctly petiolate, petiole 6–10 mm. long.

12. Flower-buds strictly clavate; secondary venation of leaves manifest.....102. *S. clavatum.*

12. Flower-buds pyriform or obovoid; secondary venation of the leaves obscure.

13. Branchlets usually dark- or reddish-brown with somewhat flaky bark; primary veins inconspicuous beneath; leaf-base varying from acute to subrounded 103. *S. caudatilimbum.*

13. Branchlets pale or cinereous, bark not especially flaky; primary veins slightly elevated beneath; leaf-base acute.
14. Petiole somewhat thickened with flaky or scaly epidermis, pale in color similar to the branchlet; leaves scarcely glandular beneath.....17. *S. peregrinum.*
14. Petiole not thickened, dark-brown; leaves profusely glandular beneath 104. *S. brachyrachis.*

7. Calyx-limb minutely dentate or truncate or sometimes lobed (lobes usually not exceeding 0.5 mm. long).
8. Leaves elongate-lanceolate, subsessile, with rounded base.....105. *S. gladiatum.*
8. Leaves otherwise.
9. Epidermis of the rachis and branches of the inflorescence (and sometimes of the ultimate branchlets) conspicuously flaky, reddish-brown, in the earlier stages of development exceedingly verrucose, rugose and coral-like.....106. *S. Curtisii.*
9. Epidermis of the rachis and branches of the inflorescence not particularly flaky.
10. Flower-buds just before anthesis not less than 5 mm. long.
11. Branchlets 4-angled.
12. Leaves acute or cuneate at the base (or if rounded, then short-cuneate to join the petiole).
13. Leaves large, up to 22 cm. long, openly veined 107. *S. valdevenosum.*
13. Leaves smaller (rarely exceeding 10 cm. long), closely veined.
14. Leaves with very slender veins (except the midrib) not at all elevated beneath; reticulations fine but distinctly marked 108. *S. myrtifolium.*
14. Leaves with the primary veins slightly elevated below, reticulations obscure 109. *S. pyrifolium.*
12. Leaves with a rounded or an emarginate base.
13. Leaves drying olive-green or brownish above and brownish beneath; primary veins distinct on both surfaces; intramarginal vein 3–4 mm. within the margin; calyx-limb obconical, ± funnel-shaped after anthesis 64. *S. paucipunctatum.*
13. Leaves drying pale or yellowish-green, copiously puncticulate on the upper surface; primary veins slightly impressed above, scarcely visible beneath; intramarginal vein about 1 mm. within the margin; calyx-limb cupulate after anthesis.....110. *S. pallidilimbum.*
11. Branchlets terete to sulcate.
12. Flower-buds just previous to anthesis rarely less than 9 mm. long.
13. Apex of the flower-buds mostly 2–3 mm. in diameter.
14. Leaves large, up to 18 cm. long; submarginal vein 2 mm. within the margin (calyx-lobes really 0.5–1 mm. long)....102. *S. clavatum.*
14. Leaves smaller, less than 9 cm. long; submarginal vein about 1 mm. within the margin.....111. *S. viridifolium.*
13. Apex of the flower-buds 3.5–6 mm. in diameter.
14. Calyx-tube verruculose or minutely tuberculate.....112. *S. napiforme.*
14. Calyx-tube often minutely glandular but not verruculose.
15. Apex of the flower-buds 3.5–4 mm. in diameter; calyx-limb ± urceolate, almost covering the enlarged upper portion of the flower-bud; corolla small; stamens mostly short.
16. Calyx undulate; leaves large, up to 19 cm. long, drying yellowish-brown; venation obscure; axis of infructescence 1+ mm. in diameter.....113. *S. ochneocarpum.*
16. Calyx shallowly lobed; leaves smaller, up to 11 cm. long; venation manifest or sometimes scarcely so; axis of the inflorescence slender, less than 1 mm. in diameter.
17. Leaves and flowers drying reddish-brown; secondary veins obscure; leaves impellucid, the lower surface minutely gland-dotted.....114. *S. fusticuliferum.*
17. Leaves drying greenish and the flowers dark brown; secondary veins practically as distinct as the primary ones; younger leaves profusely pellucid-punctate, older leaves impellucid but copiously dotted with minute glands 115. *S. adenophyllum.*
15. Apex of the flower-buds 5–6 mm. in diameter; calyx-limb cyathiform; corolla larger (covering at least half the globose apex of the bud); stamens long (about 7–9 mm.).
16. Leaves large, up to 20 cm. long, with a short obtuse acumen; flower-buds ± 10 mm. long; calyx dentate, tapering to a thickish pseudostipe. 116. *S. oligomyrum.*
16. Leaves smaller, up to 10 cm. long, obtusely acuminate; flower-buds ± 13 cm. long; calyx truncate or undulate, tapering to a slender pseudostipe 117. *S. Christmannii.*
12. Flower-buds just previous to anthesis rarely more than 8 mm. long.
13. Flower-buds without a pseudostipe 96. *S. perpuncticulatum.*
13. Flower-buds with a pseudostipe.
14. Corolla tending to be flat, the calyx covering most of the upper portion of the bud.
15. Leaves ovate-elliptic with a short and rounded-cuneate base; inflorescence axillary and terminal, fairly compact; flowers not particularly constricted below the calyx-limb.....118. *S. rugosum.*
15. Leaves elliptic (mostly tapering equally at both ends) with a cuneate base; inflorescence chiefly terminal and clustered; flowers usually somewhat constricted below the calyx-limb...119. *S. attenuatum.*

14. Corolla concave and often hemispherical covering the upper portion of the bud.
15. Primary venation of the leaves strongly ascending.
16. Leaves obtusely acuminate; intramarginal vein 3.5–4 mm. within the margin; calyx-limb distinctly lobed or dentate 120. *S. sarawacense.*
16. Leaves obtuse or subacute; intramarginal vein 1.5–2 mm. within the margin; calyx truncate or obscurely lobed 121. *S. Muelleri.*
15. Primary venation of the leaves spreading-ascending.
16. Flowers with calyx-lobes mostly more than 0.5 mm. long.
17. Secondary venation fine and distinct on the lower surface of the leaves.
18. Leaves with a long slender acumen; reticulations fine and slightly raised on the lower surface.....68. *S. rostratum.*
18. Leaves with a shorter and broad acumen; reticulations coarser.
19. Reticulations scarcely raised on the lower surface.
20. Calyx ± 4 mm. long, turbinate (abruptly contracted into a pseudostipe).....69. *S. syzygioides.*
20. Calyx ± 6 mm. long, elongate-conical gradually narrowed to a pseudostipe. 122. *S. oblatum.*
19. Reticulations slightly raised on the lower surface; calyx ± 6 mm. long 123. *S. cerasiforme.*
17. Secondary venation not sharply marked on either surface of the leaves 109. *S. pyrifolium.*
16. Flowers with calyx-limb minutely lobed or undulate.
17. Primary veins ± 1 cm. apart; reticulations lax or indistinct.
18. Leaves oblong; secondary venation obscure; submarginal vein about 2 mm. within the margin; inflorescence axillary and terminal, about 5 cm. long and as wide.....124. *S. Villamilii.*
18. Leaves elliptic to broadly oblong-elliptic; submarginal vein 3.5–4 mm. within the margin; secondary venation distinct; inflorescence terminal, 7–12 cm. long.
19. Leaves usually about 12 to 18 cm. long; primary veins about 20 on either side of the midrib..125. *S. elliptilimbum.*
19. Leaves up to 13 cm. long; primary veins about 12 on either side of the midrib 126. *S. remotifolium.*
17. Primary veins rarely 1 cm. apart (if so, secondary veins sufficiently prominent to cause the leaves to appear closely veined); reticulations close.
18. Leaves acute or obtusish, drying pale olivaceous, the under surface light brown; lateral veins ± 5 mm. apart reticulations lax and inconspicuous 127. *S. kalahiense.*
18. Leaves mostly obtusely acuminate, drying dark brown; lateral veins (primary and secondary) numerous and close together; reticulations various.
19. Flower-buds subglobose with a short pseudostipe (1–1.5 mm. long) 128. *S. laevigatum.*
19. Flower-buds turbinate or subglobose at the apex tapering into a pseudostipe at least 2 mm. long.
20. Venation very fine and inconspicuous on both surfaces, but more distinct on the upper one. 129. *S. inophyllum.*
20. Venation fine and slightly elevated on the lower surface of the leaves, much less manifest on the upper one.
21. Branchlets reddish-brown or dark; leaves with a short- or rounded-cuneate base....130. *S. javanicum.*
21. Branchlets pale greyish; leaves ± acuminate at the base 131. *S. racemosum.*
10. Flower-buds just previous to anthesis not more than 5 mm. long.
11. Inflorescence compact, rachis not more than 1 cm. long.
12. Branchlets distinctly angled..132. *S. baramense.*
12. Branchlets terete to sulcate.
13. Leaves with close parallel venation 133. *S. filicaudum.*
13. Leaves openly veined; secondary veins obsolete 134. *S. rhynchophyllum.*
11. Inflorescence open; rachis up to 10 (or more) cm. long.
12. Leaves openly veined (primary veins rarely less than 5 mm. apart).
13. Leaf-margin subcrenulate; veins and reticulations prominent on both surfaces; the blade with scattering and large pellucid dots 135. *S. subcrenatum.*
13. Leaf-margin entire; veins not prominent above, reticulations usually inconspicuous; the blade, if pellucid-punctate, with minute dots.
14. Fruits obovoid-ellipsoid, reticulate-rugose 136. *S. albidirameum.*
14. Fruits mostly subglobose (not known in all species), not reticulate-rugose.
15. Flower-buds with a definite pseudostipe.
16. Calyx scarcely 3 mm. (including pseudostipe 1–1.5 mm.) long and almost as broad at the apex. 143. *S. stictophyllum.*
16. Calyx at least 4 mm. (including pseudostipe 2–2.5 mm.) long, about 2.5 mm. broad at the apex.
17. Branchlets pale; leaves with a long slender acumen (1–1.5 cm. long); primary veins spreading-ascending; inflorescence sparsely branching, with few flowers 137. *S. aphanomyrtoides.*

17. Branchlets brownish or pale brown; leaves blunt-acuminate; primary veins strongly ascending; inflorescence branching, with many flowers.....120. *S. sarawacense.*
15. Flower-buds obconical or campanulate (without a pseudostipe).
16. Primary veins 6–10 on either side of the midrib; leaves chiefly obtuse, rounded or emarginate (sometimes obtusely acuminate).
17. Leaves puncticulate above; bracts of the inflorescence tending to persist 138. *S. borneense.*
17. Leaves epunctate; bracts of the inflorescence deciduous.
18. Leaves glaucescent beneath; primary veins only slightly impressed above; petioles ± 1 cm. long (with the attenuate base of the leaf ± 2 cm.) 139. *S. litseaefolium.*
18. Leaves pale- to reddish- or dark brown beneath; primary veins aciculately impressed above; petioles ± 1 cm. long (with the ± attenuate base of the leaf) 140. *S. Korthalsianum.*
16. Primary veins 12–20 (or more) on either side of the midrib; leaves obtusely acuminate.
17. Leaves lance-ovate to elliptic, rarely exceeding 8 cm. long, not puncticulate 141. *S. roseomarginatum.*
17. Leaves oblong- to obovate-elliptic, 8–16 cm. long, glandular-puncticulate on the lower surface.
18. Flowers small, rarely more than 3 mm. long; calyx truncate.
19. Branchlets whitish; inflorescence 1–4 cm. long; leaves pellucid-punctate, lower surface of the midrib usually copiously glandular-pustulate.
20. Leaves mostly more than 10 cm. long, chartaceous; flower-buds only slightly narrower at the base than at the apex....142. *S. chrysanthum.*
20. Leaves rarely more than 10 cm. long (chiefly elliptic), chartaceous toward coriaceous; flower-buds definitely narrowed above the base 143. *S. stictophyllum.*
19. Branchlets brownish-gray; inflorescence up to 11 cm. long; lower surface of the midrib with scattering and minute glands.....144. *S. Treubii.*
18. Flowers larger, usually 5 mm. long, with shallow lobes. 96. *S. perpuncticulatum.*
12. Leaves with close venation (primary veins usually not more than 4 mm. apart).
13. Leaves distinctly acuminate.
14. Flower-buds obovoid or turbinate, without a pseudostipe.
15. Calyx-limb dentate or undulate, apparently uniform in thickness; leaves sometimes scatteringly punctate, eglandular or sparsely glandular on the lower surface.
16. Rachis and branches of the inflorescence stout (rachis 2–4 mm., branches 1.5–2 mm. in diameter).....145. *S. Slootenii.*
16. Rachis and branches of the inflorescence slender (rachis 1–1.5 mm., branches scarcely 1 mm. in diameter).
17. Leaves elliptic; lateral veins indistinct and close.....146. *S. Havilandii.*
17. Leaves ovate to lance-elliptic; lateral veins distinct and more remote 141. *S. roseomarginatum.*
15. Calyx-lobes about 0.5 mm. long, thickened, convex on the dorsal side; leaves copiously but minutely glandular on the lower surface; venation distinct 147. *S. pachysepalum.*
14. Flower-buds globose at the apex, abruptly narrowed to a pseudostipe.
15. Branchlets pale; leaves drying yellowish- or olive-green.
16. Calyx-limb very shallow (−0.5 mm. deep); style barely exserted; primary veins and reticulations fairly distinct on both surfaces.....148. *S. leucoxylon.*
16. Calyx-limb deeper (+ 1 mm. deep); style exserted (± 2 mm. beyond the calyx-limb); primary veins indistinct 149. *S. Alcinae.*
15. Branchlets dark or reddish-brown; leaves drying dark brown, reddish beneath; primary veins and reticulations distinct on the upper surface, faint on the lower one 150. *S. nigricans.*
13. Leaves rounded or emarginate or rather bluntly obtuse at the apex, sometimes with a very short (± 3 mm.) acumen.
14. Leaves oblong- to elliptic-oblanceolate; primary veins aciculate on the upper surface, inconspicuous on the lower one; branches pale.....140. *S. Korthalsianum.*
14. Leaves obovate-oblong to -elliptic or narrowly elliptic; primary veins not aciculate on the upper surface; branches pale or brownish.
15. Ultimate branchlets 4-angled.
16. Flowers sessile, several (more than 3) clustered at the tips of the short branchlets.
17. Flower-buds with a pseudostipe; leaves with an elongate cuneate base 151. *S. prasiniflorum.*
17. Flower-buds obovoid, without a pseudostipe; leaves with a short- or rounded-cuneate base....152. *S. punctilimbum.*
16. Flowers usually in 3's at the tips of the branches, the middle one sessile, the outer two pedicellate.
17. Leaves copiously puncticulate on both surfaces; flower-buds clavate, about 5 mm. long, slender 153. *S. nigropunctatum.*

17. Leaves puncticulate; flower-buds obovoid, about 3 mm. long, 154. *S. Hackenbergii.*
15. Ultimate branchlets terete or compressed.
16. Leaves obovate to obovate-oblong or -elliptic; lateral veins not particularly distinct above; inflorescence chiefly terminal.
17. Flowers crowded at the tips of the branchlets; leaves usually copiously puncticulate on the upper surface, acute or rounded-cuneate at the base 152. *S. punctilimbum.*
17. Flowers usually in 3's at the tips of the branchlets; leaves obscurely, if at all, puncticulate on the upper surface, acuminate at the base 155. *S. incarnatum.*
16. Leaves lance-elliptic, equally narrowed toward the base and the apex; inflorescence chiefly axillary. 156. *S. petrophilum.*

1. **Syzygium Hoseanum** (King) comb. nov.

*Eugenia Hoseana* King, Jour. As. Soc. Bengal, **70** (2): 106. 1901 (Mater. Fl. Malay. Pen. **3**: 536); Ridl. Fl. Malay Pen. **1**: 733. 1922, Jour. Bot. **68**: 13. 1930.

British North Borneo, Bangawan, *Wood 2072:* Sarawak, near Kuching, *Haviland 2922.* Malay Peninsula; originally described from Perak.

2. **Syzygium cephalophorum** (Ridl.) comb. nov.

*Eugenia cephalophora* Ridl. Jour. Bot. **68**: 13. 1930.

Sarawak, near Kuching, *Haviland 2175/1684.*
Known only from Borneo.

We have no further collection of *Syzygium cephalophorum* (Ridl.). Belonging to that group of species commonly separated from the others by the fact that each flower is apparently subtended by four persistent bracts, *S. cephalophorum* (Ridl.) does not seem to be very closely allied with any member of the group.

3. **Syzygium capitatum** (Merr.) comb. nov.

*Eugenia capitata* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 208. 1917, Enum. Born. Pl. 426. 1921.

*Eugenia inophylla* sensu Ridl. Jour. Bot. **68**: 35. 1930, quoad *Beccari 3102*, non Roxb.

Sarawak, Santubong, *Native collector 2309* (type, Herb. Manila; isotype, Herb. Arn. Arb.); Soengei Siul, *Beccari 3102.*

Known only from Borneo.

Ridley included in his Bornean record of *Eugenia inophylla* Roxb. two collections, neither of which represents Roxburgh's species. One, *Beccari 3102*, is *Syzygium capitatum* (Merr.), a species apparently allied to *E. Arnottiana* Wight; the other, *Beccari 1336*, is referable to *S. splendens* (Blume).

4. **Syzygium rosulentum** (Ridl.) comb. nov.

*Eugenia rosulenta* Ridl. Jour. Bot. **68**: 34. 1930.

British North Borneo, without definite locality, *Wood 1864:* Sarawak, without definite locality, *Native collector 1844;* Sampadi Hill, *Native Collector 5234:* Dutch Borneo, Soengei Tepoetsy, *Jaheri 894.*

Known only from Borneo.

Among those species with persistent bracts, *S. rosulentum* (Ridl.) is perhaps best distinguished by the puberulent branchlets of the inflorescence and, at least when dry, the small, dark and shining flowers.

5. **Syzygium kihamense** sp. nov.

Arbor glabra, ± 25 m. alta; ramulis ultimis quadrangulis, interdum costis acutis, circiter 4 mm. diametro; foliis obovato-oblongis, basi cuneatis, apice obtusissime lateque acuminatis, 12–22 cm. longis, supra medium 3.5–8 cm. latis, coriaceis, subconcoloribus, brunneis, costa supra canaliculata, subtus elevata, venis primariis supra impressis, 8–12, subtus perspicuis, a margine ± 3 mm. arcuato-anastomosantibus, venulis laxe reticulatis, minutissime adsperseque atropunctatis; petiolo 5–9 mm. longo, supra complanato, vix canaliculato; inflorescentiis terminalibus axillaribusque etiam ex axillis defoliatis, saepius solitariis, e basi ramosis, ramis ascendentibus vel divaricatis, basi apiceque bracteolatis; floribus in apice ramorum glomerato-confertis, bracteolis ± 2 mm. longis; fructibus immaturis urceolatis, 7 mm. longis, 5 mm. diametro.

Dutch Borneo, Western Koetai, near Kiham, Batoe Bong, *Endert 2341*, July 31, 1925 (type, Herb. Buitenzorg); Poeloe Laoet, Soengei Paring, *Verhoef 126.*

This species is closely allied to *S. petakense*, but it is distinct by its 4-angled branchlets, more elongate leaves, larger bracts and bracteoles, and urceolate fruits.

6. **Syzygium petakense** sp. nov.

Arbor glabra 10–25 m. alta; ramulis ultimis teretibus vel sulcatis, circiter 3 mm. diametro; foliis anguste ellipticis vel oblanceolato-ellipticis, basi cuneatis, apice obtusis vel late acutis, 8–14 cm. longis, 3–7 cm. latis, coriaceis, supra brunneis, puncticulatis, subtus pallidioribus, minute atropunctatis, costa supra sulcata, subtus elevata, venis primariis perspicuis, 9–14, ± 1 cm. remotis, a margine 2–4 mm. arcuato-anastomosantibus, venulis laxe reticulatis; petiolo ± 7 mm.

longo, supra complanato; inflorescentiis ex axillis defoliatis vel apice ramorum annotinorum, solitariis vel fasciculatis, ramis divaricatis vel ascendentibus, basi apiceque bracteolatis; floribus sessilibus, congestis, basi bracteolatis, bracteolis ± 1 mm. longis latisque; calycis tubo 2 mm. longo, obconico, dense pustulato, lobis 0.5 mm. longis; staminibus numerosis, antheris glanduloso-apiculatis; fructibus immaturis, cyathiformibus, 4 mm. longis, 3 mm. diametro.

Dutch Borneo, Western Koetai, near Long Petak, *Endert 4063* (type, Herb. Buitenzorg), September 6, 1925, at ± 400 m. alt., *4715*, October 30, 1925, at ± 450 m. alt.

This species is perhaps most nearly related to *S. kihamense* Merr. & Perry; it differs, however, in its terete branchlets, inconspicuous bracts and cup-shaped fruit. The flowers are densely pustular, also the new branchlets. There is no inflorescence on the new growth.

7. **Syzygium Odoardoi** sp. nov.

*Eugenia riparia* Becc. Nelle Foreste di Borneo, 524, *fig. 65, 4.* 1902, *nomen;* Merr. Enum. Born. Pl. 433. 1921, *nomen*, non DC.

Arbor parva glabra; ramis ramulisque teretibus, laevibus, pallide brunneis, ramulis circiter 3 mm. diametro; foliis anguste lanceolatis, coriaceo-rigidis, brunneis vel olivaceis, nitidis, subtus pallidioribus, 10–15 cm. longis, 1.3–2 cm. latis, utrinque aequaliter angustatis, basi cuneatis, apice breviter obtuseque acuminatis, supra impresso-puncticulatis, subtus disperse glanduloso-punctatis, costa supra impressa subtus elevata, nervis primariis utrinque numerosis ad 40, gracilibus vix perspicuis, petiolo 1.5–2 cm. longo; inflorescentiis terminalibus, racemoso-corymbosis, breviter pedunculatis, circiter 7 cm. longis, ad 10 cm. latis, multifloris, ramis oppositis patulis vel ascendentibus, inferioribus 3–5 cm. longis; fructibus cylindraceo-ellipsoideis, circiter 1 cm. longis et 4.5 mm. diametro, in ramulis ultimis in triadibus dispositis, pedicellis 3–5 mm. longis; sepalis 4, coriaceo-rigidis, late ovatis, rotundatis vel late acutis, circiter 2 mm. latis; bracteis bracteolisque triangulari-ovatis, rigidis, acutis, circiter 1.5 mm. longis.

Sarawak, Upper Rejang River, Gat, *Clemens 21633* (type, Herb. Arn. Arb.; isotype, Herb. New York Bot. Gard.), July, 1929, near the river, fruit purple; Rapids of the Rejang River, *Beccari 3830.*

A species well characterized by its lanceolate, rather rigid leaves and its terminal racemose-corymbose inflorescences. It is unquestionably the species named by Beccari as *Eugenia riparia* Becc. (non DC.) of which he figured a single leaf but gave no description. It clearly belongs in the group with *Syzygium fastigiatum* (Blume) but has totally different vegetative characters. See Beccari's discussion of stenophylly, Nelle foreste di Borneo, pp. 412, 413, 524. 1902.

8. **Syzygium neriifolium** (as *neerifolium*) Becc. Nelle Foreste di Borneo, 403, *fig. 65, 5.* 1902, *nomen;* Merr. Enum. Born. Pl. 431. 1921, *nomen.*

Arbor glabra; ramis teretibus, laevibus, pallidis vel cinereis, ramulis ± compressis, circiter 2 mm. diametro; foliis oppositis, subcoriaceis, lanceolatis, 13–20 cm. longis, 2.5–3.5 cm. latis, utrinque subaequaliter angustatis, basi cuneatis, apice tenuiter acuminatis interdum falcatis, supra olivaceis, subtus pallidis, adsperse atro-puncticulatis, nervis primariis utrinque 25–36, 5–10 mm. distantibus, tenuibus, patulis, rectis, a margine circiter 1 mm. anastomosantibus, margine bene revoluto, costa supra impressa subtus elevata; petiolo 1–2 cm. longo; cymis terminalibus, 3–4 cm. longis latisque, pedunculatis vel sessilibus atque e basi ramosis, ramis trichotomis; bracteis bracteolisque oblongo-ovatis, coriaceis, acutis vel obtusis, 2–3 mm. longis; floribus ± confertis, parvis, plerumque in triadibus aggregatis; alabastro elongato, pedicellis rugosis, incrassatis, 2–3 mm. longis; calycibus oblongo-obovoideis, circiter 3 mm. longis, 2 mm. latis, rugosis, obscure glanduloso-punctatis, lobis brevissimis, obtusis, petalis verisimiliter in calyptram connatis, calyptra 2 mm. diametro.

Sarawak, banks of Entabei, *Beccari 3862* (type, Orto Botanico, Florence), October, 1867.

This very characteristic species was named but not described by Beccari and is one of the species considered by him, with a figure of a single leaf, in his discussion of stenophyllous plants, Nelle Foreste di Borneo, 403. 1902, where the name *Syzygium neriifolium* appears for his number *3862;* this was not, however, entered on his herbarium sheet. It belongs in the group with *Syzygium fastigiatum* (Blume) and is very closely allied to *S. Odoardoi* Merr. & Perry. It differs in leaf-venation, the primary veins of the former being subtransverse, whereas, those of the latter are spreading-ascending and not so far apart. Further, the leaf of the first is more pliable and less rigid than that of the second.

9. **Syzygium Moultonii** (Merr.) comb. nov.

*Eugenia Moultonii* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 221. 1917, Enum. Born. Pl. 431. 1921.

Sarawak, Tabwan Road and Rock Road, *Native*

*collector 811* (type, Herb. Manila; isotype, Herb. Arn. Arb.); Kapit, Upper Rejang River, *Clemens 21388.*

Known only from Borneo.

A species readily recognized by its short and few-flowered inflorescences.

10. **Syzygium fastigiatum** (Blume) comb. nov.

*Calyptranthus fastigiata* Blume Bijdr. 1090. 1826.

*Calyptranthus floribunda* Blume, op. cit. 1091.

*Caryophyllus fastigiatus* Blume in DC. Prodr. **3**: 262. 1828; Miq. Fl. Ind. Bat. **1** (1): 465. 1855.

*Caryophyllus floribundus* Blume in DC. Prodr. **3**: 262. 1828; Korth. Nederl. Kruidk. Arch. **1**: 198. 1847; Miq. l. c.

*Eugenia bracteolata* Wight, Ill. **2**: 15. 1841, Ic. **2**: *t. 531.* 1843; Kurz, Jour. As. Soc. Bengal, **46** (2): 66. 1877, For. Fl. Brit. Burma, **1**: 482. 1877; Duthie in Hook. f. Fl. Ind. Brit. Ind. **2**: 488. 1878; King, Jour. As. Soc. Bengal, **70** (2): 122. 1901 (Mater. Fl. Malay. Pen. **3**: 552); Ridl. Fl. Malay Pen. **1**: 747. 1922, Jour. Bot. **68**: 35. 1930; Craib, Fl. Siam. Enum. **1**: 633. 1931.

*Acmena bracteolata* Walp. Rep. **2**: 181. 1843.

*Eugenia confertiflora* Koord. & Val. Meded. Lands Plant. **40**: 106. 1900 (Bijdr. Boomsoort. Java, **6**: 106), Atlas Baumart. Java, **3**: *f. 480.* 1915; Merr. Enum. Born. Pl. 427. 1921, non *Eugenia confertiflora* A. Gray.

*Eugenia fastigiata* Koord. & Val. Meded. Lands Plant. **40**: 104. 1900, Atlas Baumart. Java, **3**: *f. 479.* 1915.

*Eugenia Elmeri* Merr. Univ. Calif. Pub. Bot. **15**: 218. 1929.

*Eugenia chloroleuca* sensu Ridl. Jour. Bot. **68**: 35. 1930, non King.

British North Borneo, without definite locality, *Wood 1223;* Banguey Island, *Castro & Melegrito 1336;* Bandau, *Hassan 738;* Kampong Kitabu, *Bayak* (*B. N. B. For. Dept. 2147*); Marutai, *Maidin* (*B. N. B. For. Dept. 2436*); Kinabatangan, *Evangelista 936, Agullana 3807;* Tawao, *Elmer 21448, 21460;* Mount Kinabalu, Dallas, *Clemens 26164;* Tenompok, *Clemens 26208, 29421;* Penataran River, *Clemens 32595;* Penibukan, Pinokok Falls, *Clemens 40994;* Gurulau Spur, *Clemens 50713:* Sarawak, Upper Rejang River, Kapit, *Clemens 21338:* Dutch Borneo, near Gawang Bongkal, *Boschproefstation 1825;* Western Koetai, near Mount Kemoel, *Endert 3796;* Goenoeng Damoes, *Hallier 504;* Poeloe Laoet, Saniboeng, *Soeriodikarto 3* (*Boschproefstation bb: 14082*); Hayoep, *Winkler 2279, 2371;* without definite locality, *Korthals s. n.*

Burma, Siam, Cochinchina, Malay Peninsula, Sumatra, Borneo, and Java.

It is to be noted that Koorders & Valeton's illustration of *Eugenia confertiflora* cited above is based on Blume's type-specimen of *Caryophyllus floribundus.* From an actual examination of this in the Rijks Herbarium and a duplicate of the type in the herbarium of the New York Botanic Garden, we see no reason for distinguishing it from *E. bracteolata* Wight as represented by various collections from the Malay Peninsula. In the herbarium material at hand, although there are minor differences between specimens labeled *E. bracteolata* Wight and *E. fastigiata* (Blume) Koord. & Val., we have not found sufficiently constant distinguishing characters to retain both species. Similarly with *E. Elmeri* Merr. Our specimen of the collection *Castro & Melegrito 1336* belongs here rather than to *E. chloroleuca* King as cited by Ridley. The valid specific name for the species seems to be *fastigiatum.*

11. **Syzygium cuneiforme** sp. nov.

Glabra; ramulis ultimis teretibus vel compressis, 0.5–1 cm. diametro, pallido-brunneis; foliis obovatis, 12–17 cm. longis, 7–11 cm. latis, supra atrobrunneis, subtus pallidioribus, glandulis minutis late adspersis, costa supra impressa, subtus carinata, venis primariis numerosis, subtransversis, inter se ± 5 mm. distantibus, in venam intramarginalem 2–3 mm. a margine confluentibus, venulis vix reticulatis, vulgo parallelis, subtus obscuris supra manifestis; petiolo ± 1.5 cm. longo; inflorescentiis terminalibus, ad 8 cm. longis, rachi ramisque compressis vel angulatis; floribus pedicellatis, basi apiceque pedicelli bibracteolatis; alabastris 14–18 mm. longis, apice 7–9 mm. latis; calycis tubo 4-angulato, turbinato, lobis 1–1.5 mm. longis, 2 mm. latis, obtusis; petalis calyptratim deciduis.

British North Borneo, Mount Kinabalu, Penibukan, *Clemens 32188* (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York and Rijks Herb.), March 18, 1933, at about 1200 m. alt.

In habit this species strongly suggests *Pareugenia;* unfortunately, the flower-buds have been pierced by insects and consequently are not in good diagnostic condition. In one dissected bud only the remnants of the filaments were left, in another the stamens were too immature to be sure whether they would develop in phalanges or not, yet we hardly think so. Similarly, the corolla in its present immature state appears

calyptrate, but that at best is a fickle character in *Syzygium*. The rounded ovate bracts and bracteoles as well as the venation of the leaves mark the species as a member of the *S. fastigiatum* group.

12. **Syzygium tetragonocladum** sp. nov.

Arbor glabra; ramulis purpureo-brunneis, acute quadrangulis vel anguste alatis, circiter 5 mm. diametro; foliis oppositis, coriaceis, sessilibus, lanceolatis vel oblongo-lanceolatis, 15–27 cm. longis, 3–6 cm. latis, basi vix angustatis, bene auriculato-cordatis, auriculis rotundatis, sursum angustatis, apice tenuiter acuteque acuminatis, supra purpureo-brunneis, subtus pallidioribus, obscure punctatis, nervis utrinque 18–30, perspicuis, elevatis, in venam intramarginalem rectam a margine 1.5–2 mm. confluentibus; inflorescentiis lateralibus, infra foliis locatis, pedunculatis, cymosis, multifloris, circiter 10 cm. longis latisque, pedunculo circiter 2 cm. longo, ramis oppositis, inferioribus ad 6 cm. longis, obscure angulatis, purpureo-brunneis; ramulis ultimis vulgo trifloris; floribus 1–1.3 cm. longis, sessilibus; bracteolis deciduis, oblongis; calycis tubo circiter 8 mm. longo, castaneo, nitido, obscure rugoso, oblongo-obovoideo, sursum circiter 4 mm. lato, deorsum angustato, lobis 4, subrotundatis, 2 mm. latis, petalis concavis, adsperse glanduloso-punctatis, circiter 4 mm. latis, imbricatis neque connatis; filamentis numerosis, circiter 8 mm. longis.

Sarawak, *Beccari 2785* (type, Orto Botanico, Florence), November, 1866.

A species strongly marked by its vegetative characters, the whole plant more or less purplish-brown to castaneous when dry, the sharply 4-angled branches and branchlets, and the lateral, many-flowered peduncled inflorescences. Its alliance is clearly with *Syzygium polycephalum* (Miq.), but the latter has more or less compressed branchlets, the leaves are more obscurely punctate and the distance between the intramarginal vein and the margin is about twice as wide as in the former species.

13. **Syzygium polycephalum** (Miq.) comb. nov.

*Eugenia polycephala* Miq. Anal. Bot. Ind. **1**: 19. 1850; Koord. & Val. Meded. Lands Plant. **40**: 84. 1900, Atlas Baumart. Java, **3**: *figs. 467, 468*. 1915.

*Myrtus cauliflora* Blume Bijdr. 1086. 1826, non Mart. (1824).

*Jambosa cauliflora* DC. Prodr. **3**: 287. 1828; Miq. Fl. Ind. Bat. **1** (1): 438. 1855.

*Jambosa polycephala* Miq. op. cit. 439.

*Jambosa costata* Miq. op. cit. 415.

Dutch Borneo, Goenoeng Pamatton, *Korthals s. n.* (type of *E. polycephala* Miq., Rijks Herb.).

Distribution: Java.

We have not seen any other collection of this species from Borneo. At the Gray Herbarium is a sterile specimen collected by Horsfield in Java and labeled in Miquel's handwriting, *Jambosa costata* Miq. It is very probably an isotype and, as far as we can see, a good match for Korthals' Bornean collection in the Rijks Herbarium.

14. **Syzygium penibukanense** sp. nov.

Glabra; ramulis subcompressis, crassis, circiter 6 mm. diametro; foliis oblongo-lanceolatis, auriculato-cordatis fere semi-amplexicaulibus, obtuse acuminatis, 20–40 cm longis, 9–16 cm. latis, coriaceis, supra olivaceis adsperse minuteque punctatis, subtus pallidioribus, nerviis primariis 25–30, inter se 1–2 cm. distantibus, supra impressis, subtus manifestis; inflorescentiis lateralibus, infra foliis locatis, a basi ramosis, ramis ad 1.5 cm. longis, unifloris; floribus sessilibus; calycis tubo obconico ad 9 mm. supra ovarium producto, ± 12 mm. longo, lobis 5 mm. altis, disco staminifero rotundato, stylo ± 4.5 cm. longo.

British North Borneo, Penibukan, *Clemens 30535* (type, Herb. Arn. Arb.; isotypes at Buitenzorg and Rijks Herb.), December 14, 1932, at 1200–1500 m. alt.; Tenompok, *Clemens 26535;* West Marai Parai, *Clemens 32399;* Mount Nunkok, *Clemens 32717*, at about 1500 m. alt.

A species suggesting *Syzygium Creaghii* (Ridl.) but the base of the leaves is auriculate-cordate, the primary veins are more remote and the inflorescence is borne on the old wood, not at the tips of the branches. *Clemens 32717* is a sterile specimen which apparently belongs in this species.

15. **Syzygium dasyphyllum** sp. nov.

Verisimiliter arbor, glabra; ramulis subcompressis fuscis, crassis ± 7 mm. diametro; foliis ellipticis vel ovatis, 10–28 cm. longis, 6.5–16 cm. latis, basi rotundatis, apice obtusis vel obtuse acuminatis, coriaceis, supra olivaceis, subtus fuscis, utrinque minute, subtus profuse atropunctatis, venis primariis utrinque circiter 10, adscendenti-patulis, supra impressis, subtus elevatis, venulis obscuris, vena intramarginali 5–7 mm. a margine disposita; petiolo ± 5 mm. longo, crasso; inflorescentiis lateralibus, infra foliis locatis, 3–5 cm. altis; pedunculo communi ad 2 cm. longo, ramis ± 1 cm. longis; floribus plerumque 3, sessilibus, alabastris circiter 1.5 cm. longis, apice globosis, abrupte

stipitatis; calycis lobis late rotundatis, disco staminifero obtuse tetragono, staminibus ± 1 cm. longis, antheris ovatis, circiter 0.5 mm. longis; fructibus ignotis.

British North Borneo, Mount Kinabalu, Marai Parai, *Clemens 10931, 31899 = 32274* (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York Bot. Gard. and Rijks Herb.), March 23, 1933, low forest at 1500 m. alt.; Upper Pina Taki, Penibukan, *Clemens 31057*, river-bed at 1200–1500 m. alt.

The leaves of this species recall those of *E. Richii* A. Gray, and the lateral inflorescence that of *S. malaccense* (Linn.), but it is doubtful if the species is very closely related to either. The leaves are very stiff in the dried material, and the reddish-brown bark of the new branchlets is of that smooth type which is possibly loose on the branchlets, as it dries in longitudinal wrinkles and cracks in the same lines. The staminal disk is more or less quadrangular, and the part of the calyx beyond the ovary becomes much flattened after anthesis.

The field-label gives the second part of the number of the type-specimen as *32274* but on the distribution-label it appears as *32374*.

16. **Syzygium malaccense** (L.) Merr. & Perry, Jour. Arnold Arb. **19**: 215. 1938.

*Eugenia malaccensis* Linn. Sp. Pl. 470. 1753; Kurz, For. Fl. Brit. Burma, **1**: 493. 1877; Duthie in Hook. f. Fl. Brit. Ind. **2**: 471. 1878; Hemsl. Jour. Linn. Soc. Bot. **30**: 177. 1894; K. Schum. Notizbl. **2**: 137. 1898; Koord. & Val. Meded. Lands Plant. **40**: 55. 1900 (Bijdr. Boomsoort. Java, **6**: 55); King, Jour. As. Soc. Bengal, **70** (2): 82. 1901 (Mater. Fl. Malay. Pen. **3**: 512); Crosby, Jour. Linn. Soc. Bot. **35**: 37. 1901; Cheeseman, Trans. Linn. Soc. Bot. II. **6**: 279. 1903; Merr. Philip. Jour. Sci. Bot. **9**: 121. 1914; Koord. & Val. Atlas Baumart. Java, **3**: *f. 445*. 1914; Merr. Herb. Amboin. 398. 1917; Gagnep. in Lecomte, Fl. Gén. Indo-Chine, **2**: 839. 1921; Ridl. Fl. Malay Pen. **1**: 724. 1922; Setchell, Carnegie Inst. Wash. **20**: 64. 1924 (Veg. Tutuila Is.), Univ. Calif. Pub. Bot. **12**: 198. 1926; Wilder, Bishop Mus. Bull. **86**: 81. 1931; Craib, Fl. Siam. Enum. **1**: 651. 1931; Kanehira, Bot. Mag. Tokyo, **45**: 334. 1931, Jour. Dept. Agric. Kyushu Imper. Univ. **4**: 380. 1935; F. Brown, Bishop Mus. Bull. **130**: 201. 1935.

*Eugenia macrophylla* Lam. Dict. **3**: 196. 1789.

*Myrtus malaccensis* Spreng. Syst. **2**: 484. 1825; Blume Bijdr. 1083. 1826.

*Jambosa malaccensis* DC. Prodr. **3**: 286. 1828; Wight & Arn. Prodr. **1**: 332. 1834; Korth. Nederl. Kruidk. Arch. **1**: 200. 1847; Hook. Bot. Mag. **74**: *t. 4408*. 1848; Wight, Ill. **2**: *t. 98*. 1850; Volkens, Bot. Jahrb. **31**: 470. 1901; Rechinger, Wissensch. Forsch. Samoa-I. Neuguin.-Arch. Salomonsin. **3**: 144. 1910; Diels, Bot. Jahrb. **56**: 532. 1921.

*Jambosa purpurascens* DC. Prodr. **3**: 286. 1828, quoad syn. Roxb.

*Eugenia purpurea* Roxb. Hort. Beng. 37. 1814, *nomen*, Fl. Ind. ed. 2, **2**: 483. 1832; Wight Ic. **2**: *t. 549*. 1843; Miq. Anal. Bot. Ind. **1**: 18. 1850.

*Eugenia malaccensis* var. *purpurea* Duthie in Hook. f. Fl. Brit. Ind. **2**: 472. 1878.

*Jambosa domestica* Blume, Mus. Bot. Lugd.-Bat. **1**: 91. 1849; Miq. Fl. Ind. Bat. **1** (1): 411. 1855.

*Caryophyllus malaccensis* W. F. Wight, Contr. U. S. Nat. Herb. **9**: 217. 1905.

British North Borneo, Mount Kinabalu, Kiau, *Clemens 10210;* Mount Bungal, *Clemens 11219;* Dallas, *Clemens 26695, 26695A, 27632, 30251:* Sarawak, Upper Rejang River, Kapit, *Clemens 21203;* Kuching, *Hewitt s. n.:* Dutch Borneo, *Korthals s. n.;* Poeloe Lampei, *Korthals s. n.;* Bandjermasin, *Korthals s. n.;* Doesson, *Korthals s. n.*

Distribution: frequently cultivated in the Indo-Malaysian region, introduced in other tropical countries.

Probably *Amdjah 70*, Pladjoe, Dutch Borneo, also belongs here. It is of similar habit but has somewhat larger flowers.

17. **Syzygium peregrinum** (Blume) comb. nov.

*Jambosa peregrina* Blume, Mus. Bot. Lugd.-Bat. **1**: 92. 1849; Miq. Fl. Ind. Bat. **1** (1): 426. 1855; Merr. Enum. Born. Pl. 432. 1921.

*Eugenia tawaensis* Merr. Univ. Calif. Pub. Bot. **15**: 220. 1929.

British North Borneo, Tawao, *Elmer 20595, 20673, 20987* (type of *E. tawaensis*, Herb. Univ. Calif.): Dutch Borneo, Goenoeng Sakoembang, *Korthals* (type, Rijks Herb.).

Known only from Borneo.

Merrill's examination of Blume's type, Borneo, *Korthals*, in the Rijks Herbarium clearly showed that *Jambosa peregrina* Blume is identical with *Eugenia*

*tawaensis* Merr., the latter being accordingly reduced. The species is readily recognized by the pale terete branchlets, the impressed primary venation on the upper surface of the leaves, the almost obscure secondary venation, the thick and possibly corky petioles with the yellowish epidermis apparently soon scaly, and the very short lateral or axillary inflorescences.

18. **Syzygium sandakanense** (Merr.) comb. nov.

*Eugenia sandakanensis* Merr. Jour. Str. Branch Roy. As. Soc. **86**: 335. 1922, Univ. Calif. Pub. Bot. **15**: 216. 1929.

British North Borneo, Sandakan, *Ramos 1466* (type, Herb. Manila; isotypes at Arn. Arb. and Gray Herb.), *Puasa, B. N. B. For. Dept. 1732;* Tawao, *Elmer 21160, 21462, 21544.*

Known only from Borneo.

A species rather distinctive by the terete branchlets, the large shining leaves and the small compact lateral inflorescences. *Syzygium sandakanense* (Merr.) is closely related to *Eugenia glomerata* Koord. & Val., non Lam., but that has smaller and much more profusely pustulate leaves; the axes of the inflorescence tend to be obscure and the fruit is somewhat flattened, more depressed and more transversely oblong than in the Bornean species.

19. **Syzygium aegiceroides** Korth. Nederl. Kruidk. Arch. **1**: 203. 1847; Walp. Ann. **2**: 629. 1851–52.

*Eugenia aegiceroides* Korth. ex Miq. Anal. Bot. Ind. **1**: 22. 1850; Merr. Enum. Born. Pl. 425. 1921.

Dutch Borneo, Martapoera, *Korthals s. n.* (type, Rijks Herb.).

Known only from Borneo.

This species is closely related to, if not identical with, *S. polyanthum* (Wight) Walp. None of the collections at hand appear to match the type which we regret to say is somewhat fragmentary. All but two of the leaves have disarticulated leaving the branch with remnants of the inflorescence on the year-old growth. Only two flowers remain attached to the axes which are 8–11 mm. long. The flowers are very small (calyx 2 mm. long) with a somewhat quadrangular disc. The leaves are thicker, more obovate and more shortly and bluntly acuminate than most of those in *S. polyanthum* (Wight) Walp. The venation is also more prominent in the latter species.

20. **Syzygium polyanthum** (Wight) Walp. Rep. **2**: 180. 1843; Merr. & Perry, Jour. Arnold Arb. **19**: 108. 1938, non Miquel (1855).

*Eugenia polyantha* Wight, Ill. Ind. Bot. **2**: 17. 1841; Duthie in Hook. f. Fl. Brit. Ind. **2**: 496. 1878; Koord. & Val. Meded. Lands Plant. **40**: 88. 1900 (Bijdr. Boomsoort. Java, **6**: 88); King, Jour. As. Soc. Bengal, **70** (2): 103. 1901 (Mater. Fl. Malay. Pen. **3**: 533); Koord. & Val. Atlas Baumart. Java, **3**: *f. 470, 471.* 1915; Ridley, Fl. Malay Pen. **1**: 742. 1922; Merr. Univ. Calif. Pub. Bot. **15**: 216. 1929; Ridl. Jour. Bot. **68**: 35. 1930; Craib, Fl. Siam. Enum. **1**: 656. 1931.

*Myrtus cymosa* Blume, Bijdr. 1086. 1826, non Spreng. (1825), nec *Eugenia cymosa* Lam.

*Syzygium cymosum* Korth. Nederl. Kruidk. Arch. **1**: 202. 1847, non DC.

*Eugenia microbotrya* Miq. Anal. Bot. Ind. **1**: 27, *t. 10.* 1850; Merr. Enum. Born. Pl. 430. 1921.

*Syzygium confusum* Blume ex Miq. op. cit., *in syn.*

*Eugenia pamatensis* Miq. op. cit. 22, *t. 4;* Merr. op. cit. 432.

*Syzygium micranthum* Blume ex Miq. op. cit. 22, *in syn.*

*Eugenia cerasoides* sensu Miq. op. cit. 27, non Roxb.

*Eugenia Junghuhniana* Miq. Fl. Ind. Bat. **1** (1): 444. 1855, fide Koord. & Val.

*Eugenia lucidula* Miq. op. cit., based on *Myrtus cymosa* Blume.

*Eugenia resinosa* Gagnep. Not. Syst. **3**: 331. 1918, et in Lecomte, Fl. Gén. Indo-Chine, **2**: 820. 1920.

*Eugenia balsamea* sensu Ridl. Fl. Malay Pen. **1**: 754. 1922, non Wight (fide Craib).

British North Borneo, Sandakan, *Elmer 20251:* Sarawak, Marop, *Beccari 3326;* Saribas, Peku River bank, *Haviland 1564:* Dutch Borneo, Western Koetai, Seboeloe, *Abdulhamid 446* (*Boschproefstation bb: 15759*); Kombeng, *Endert 5178, 5242;* Bandjermasin, Sampit, Asem Koembang, *Baderoen 2671* (*Boschproefstation bb: 2658*); Pleihari, *Boschproefstation 1949, 2105, Rassid 1940;* Pelandjaän, *Rameli* (*Z. O. B. 2459*); Poeroektjahoe, Maroewai, *Atmosoewarno 67* (*Boschproefstation bb: 10616*); Boekit Kasian, *Amdjah 2;* Bloe-oe, *Jaheri 709;* Soengeidingez, *Jaheri 843;* between Soengei and Goenoeng Kenepai, *Hallier 1946;* Ariname, *Korthals s. n.* (type of *E. microbotrya* Miq., Rijks Herb.); Goenoeng Pamatton, *Korthals s. n.* (type of *E. pamatensis* Miq., Rijks Herb.); Poeloelampei, *Korthals s. n.;* without definite locality, *Korthals s. n.*

Distribution: Burma, Siam, Indo-China, Malay Peninsula, Sumatra, and Java.

*Syzygium leptostemon* (Korth.) is very closely allied to *S. polyanthum* (Wight) Walp., but the inflorescence of the latter is more profusely branched, the flowers are smaller and usually in threes at the tips of the branches of the inflorescence, also the leaves are smaller with less ascending and fewer primary veins.

We have examined the actual types of *Myrtus cymosa* Blume, *Eugenia microbotrya* Miq. and *E. pamatensis* Miq., and consider that they represent a single species. Miquel's plates cited above as illustrating *E. microbotrya* and *E. pamatensis* present some differences in leaf-size and in the number of lateral nerves, but after examining the original collections, we see no reason for distinguishing more than one species.

21. **Syzygium leptostemon** (Korth.) comb. nov.

*Jambosa leptostemon* Korth. Nederl. Kruidk. Arch. **1**: 201. 1847.

*Strongylocalyx leptostemon* Blume, Mus. Bot. Lugd.-Bat. **1**: 89, *t. 54*. 1849.

*Eugenia leptostemon* (Korth.) Miq. Fl. Ind. Bat. **1** (1): 442. 1855; Merr. Enum. Born. Pl. 429. 1921.

*Eugenia urceolata* King, Jour. As. Soc. Bengal, **70** (2): 101. 1901 (Mater. Fl. Malay. Pen. **3**: 531), non *Jambosa urceolata* Korth.

*Eugenia subracemosa* Merr. Jour. Str. Branch Roy. As. Soc. **79**: 23. 1918, Enum. Born. Pl. 433. 1921.

*Eugenia rotata* King ex Craib, Fl. Siam. Enum. **1**: 660. 1931.

Sarawak, near Kuching, *Haviland 2928* (type of *E. subracemosa*), *Hewitt s. n.*: Dutch Borneo, without locality, *Korthals s. n.* (type, Rijks Herb.); Sepaandingei, *Jaheri 809;* Western Koetai, near Moeara Antjaloeng, *Endert 2056;* near Long Petak, *Endert 3505, 3321*.

In addition to the above cited specimens the following sterile (or with a separate fruit or two) material appears to belong here: Dutch Borneo, Mahakan, *Amdjah 45;* Poeroektjahoe, *Atmosoewarno 3263;* T. Leban, *Pohan 107* (*Boschproefstation bb: 14660*); Tahat, *Abdulhamid 34* (*Boschproefstation bb: 12553*); Sangkoelirang, *Abdulhamid 48, 51* (*Boschproefstation bb: 12564, bb: 12567*).

Distribution: Siam, Malay Peninsula, Borneo, and Banka (fide Craib).

*Jambosa leptostachya* Blume is to be removed from the synonymy of *Syzygium leptostemon* (Korth.) as given by Merrill, Enum. Born. Pl. 429, as a species quite unrelated to *S. leptostemon* (Korth.) represented.

Miquel, Anal. Bot. Ind. **1**: 28. 1850, states that he then failed to find the type of *Jambosa leptostemon* Korth., but he may have located it later, or his description, Fl. Ind. Bat. **1** (1): 442, was taken from *Strongylocalyx leptostemon* Blume, op. cit. The original specimen is in the Rijks Herbarium.

The species is distinguished by the usually lateral and subracemose inflorescences, the somewhat quadrangular disc of the flowers, the 4-angled branchlets, the open venation and the obliquely ascending primary veins of the leaves. Occasionally the inflorescence appears axillary and terminal on the older branches. King, l. c., in his description of *E. urceolata* (Korth.) King, states that the branches of the inflorescence are "powdered with ferrugineous scurf." Apparently this is owing to the fact that the epidermis cracks into tiny flakes as the branches grow older; when very young, however, the branches appear to be smooth. Both states are well shown in our Malayan as well as in our Bornean specimens.

22. **Syzygium Jaherii** sp. nov.

Ramuli novelli exacte tetragoni, 1–1.5 mm. diametro, atrobrunnei, leviter granuloso-puberuli; foliis oblanceolatis vel anguste ellipticis, apice abrupte obtuseque acuminatis, acumine ± 1 cm. longo, basi cuneatis, 3.5–7 cm. longis, 1.5–2.5 cm. latis, olivaceis vel brunneis, crebre minuteque punctatis, costa impressa, venis primariis manifestis, numerosis, 1–1.5 mm. remotis; inflorescentiis axillaribus, vix 1 cm. longis, a basi ramosis, ramis divaricatis rachique puberulis; alabastris sessilibus, 4 mm. longis, obconicis, breviter stipitatis.

Dutch Borneo, without definite locality, *Jaheri s. n.* (type, Herb. Buitenzorg), 1893; Boekit Batoe Lessoeng, *Amdjah 495*.

This species has the general habit of *Eugenia Benjamina* King but both the leaves and the flowers are smaller and the branchlets are sharply 4-angled. The young branchlets are slightly granular-puberulent and the rachis and its branches definitely so.

23. **Syzygium castaneum** (Merr.) comb. nov.

*Eugenia castanea* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 212. 1917, **79**: 22. 1918, Enum. Born. Pl. 426. 1921.

*Eugenia cymosa*, var. *concinna* King saltem quoad *King's collector 10521*, non *Syzygium concinnum* Wall.

British North Borneo, without definite locality, *Wood 943, 1882;* Sandakan and vicinity, *Ramos 1337, 1812;* Tawao, *Elmer 21275;* Mount Kinabalu, Dallas, *Clemens 29301, 29301A, 27369;* Niah, on limestone formation, *Haviland & Hose 3215A;* Penibukan, *Clemems 50258;* Mount Nunkok, *Clemens s. n.:* Sarawak, Baram District, *Hose 359* (type, Herb. Manila); Mount Poi, *Foxworthy 223;* Mount Merinjak, Sadong, *Native collector 2644:* Dutch Borneo, Soengei Ikang, *Jaheri 1170.*

Distribution: Malay Peninsula.

This species is best characterized by its finely veined and abruptly also obtusely acuminate leaves, its puberulent branchlets, and the rather slender branching puberulent or very minutely papillose inflorescences; the leaves are minutely and usually copiously glandular-punctate on the lower surface, but this is often difficult to see on account of the dark color of the dried leaf.

*King's collector 10521* from Perak labeled *Eugenia cymosa*, var. *concinna* King (in our herbarium) is apparently identical with the Bornean material cited above. King does not mention the puberulent character in his description, and Sir Arthur W. Hill, Director of the Royal Botanic Gardens, Kew, has very kindly supplied us with the information that the inflorescence and branchlets of Wallich's specimen no. 3582—*Syzygium concinnum*, upon which King's variety was based—are quite glabrous. Ridley, Fl. Malay Pen. **1**: 737. 1922, attributes scurfy branches and inflorescence to this variety citing a specimen from Perak and giving the distribution as Burma, Assam, Java; this, probably, is similar to the collection mentioned above which we identify as *S. castaneum* (Merr.).

The following specimens differing from the type in having leaves with less obvious secondary venation and more profusely branched and stouter inflorescences, are placed here with some hesitancy: Sarawak, without definite locality, *Native collector 815, 1170, 2178;* near Sarawak, *Haviland 2248/1755.* About half the collections cited have sharply 4-angled branchlets, in the others the branchlets are terete or sulcate.

24. **Syzygium papillosum** (Duthie) comb. nov.

*Eugenia papillosa* Duthie in Hook. f. Fl. Brit. Ind. **2**: 495. 1878; King, Jour. As. Soc. Bengal, **70** (2): 84. 1901 (Mater. Fl. Malay. Pen. **3**: 514); Ridl. Fl. Malay Pen. **1**: 730. 1922.

Dutch Borneo, Pladjoe, *Amdjah 43.*

Distribution: Malay Peninsula.

The above cited collection seems to compare favorably with *Eugenia papillosa* Duthie of the Malay Peninsula; but, it should be noted that the specimens are not in good condition as the fruits have been punctured by insects and, hence, have developed abnormally. This species was reported from Borneo by Ridley, Jour. Bot. **68**: 12. 1930, on the basis of an erroneously identified specimen.

25. **Syzygium hirtum** (Korth.) comb. nov.

*Jambosa hirta* Korth. Nederl. Kruidk. Arch. **1**: 200. 1847; Miq. Anal. Bot. Ind. **1**: 28. 1850; Walp. Ann. **2**: 638. 1851–52.

*Jambosa rufo-tomentosa* Gibbs, Jour. Linn. Soc. Bot. **42**: 77. 1914.

*Eugenia rufo-tomentosa* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 223. 1917, **79**: 20. 1918, Enum. Born. Pl. 433. 1921, Univ. Calif. Pub. Bot. **15**: 218. 1929, Mitteil. Inst. Allg. Bot. Hamburg, **7**: 269. 1937.

British North Borneo, Tawao, *Elmer 21588;* Sapagaya, *Apostol 822;* Sandakan, *Ramos 1628;* Bettotan, near Sandakan, *Kloss 19015, Apostol (B. N. B. For. Dept. 3629);* Kinabatangan, *Evangelista 951;* Semawang, *Pascual & Sales 1044;* Mount Kinabalu, Colombon River, *Clemens 34089,* at 1600 m. alt.; Upper Kinabalu, *Clemens 40324, 40762,* at 1200 m. alt.; Tenompok, *Clemens 30250,* at 1500 m. alt.; Penibukan, *Clemens 32162=32029,* canyon west of the jungle at 1200 m. alt.; Dallas, *Clemens 26328=28311, 26994, 27228, 30249;* Mount Kalawat, *Clemens 11160;* Kiau, *Clemens 9973:* Sarawak, Lundu, *Haviland 992;* near Kuching, *Haviland 970:* Dutch Borneo, Boekit Raja, *Winkler 1008;* Martapoera, *Dachlan 113 (Boschproefstation bb: 2172);* Sepaandingei, *Jaheri 802;* Soengei Tjehan, *Jaheri 1281;* Western Koetai, Kemoel, *Endert 4403,* at ± 1800 m. alt.; Kombeng, *Endert 5151;* Poeloe Laoet, northeast of Stagen, *Van Slooten 2295;* Goenoeng Kenepai, *Hallier 1828.*

Distribution: Sumatra.

In 1917 when Merrill transferred *Jambosa rufo-tomentosa* Gibbs to *Eugenia*, he reduced to this species *Jambosa hirta* Korth. (not *Eugenia hirta* Berg). In 1930 he failed to locate Korthals' type in the Rijks Herbarium, nor is it indicated as being present in that collection in the Rijks Herbarium copy of Index Kewensis; Miquel, Anal. Bot. Ind. **1**: 28. 1850, noted that the type was not then in the herbarium, and, in Fl. Ind. Bat. **1** (1): 483. 1855, queried "Anne hujus Ordinis?" placing it under "*Myrteae excludendae.*" In spite of Korthals' very short original description we believe that there can be no question as to the

identity of this species, and in the transfer to *Syzygium* Korthals' specific name has the right of priority.

The species seems to be fairly common in Borneo and has also been collected in Sumatra. Gibbs has already pointed out something of its variability in the open and in the forest. From the series of specimens available we suspect that altitude is also a factor causing variation. The pubescence of the branchlets, petioles, axes of the inflorescences and calyx is a mixture in varying degrees of coarse long and fine short hairs. On some specimens, particularly those from Mount Kinabalu, the trichomes are prevailingly long and coarse, even on the calyx; on others, the long hairs extend less up the axis until there is either an equal mixture of coarse and fine hairs on the calyx or a predominance of fine ones. The latter condition is typical of *Eugenia villifera* Ridl.; yet, although the two extremes are readily distinguished, the intermediates are not so easy to separate. The venation of the leaves of *E. villifera* Ridl. and *S. hirtum* (Korth.) is very similar and the acumen in both species is variable. As a whole the inflorescence of *E. villifera* Ridl. is larger and has more flowers, but this is scarcely a specific difference. In view of the close similarity in foliar and floral characters *E. villifera* Ridl. seems scarcely worthy of more than varietal rank within this variable species. .

25A. **Syzygium hirtum** var. **villiferum** (Ridl.) comb. nov.

*Eugenia villifera* Ridl. Jour. Bot. **68**: 13. 1930.

Sarawak, Kuching, *Beccari 1253* (type-collection of *E. villifera* Ridl. erroneously cited as *1293*); near Kuching, *Haviland & Hose 3380;* Santubong, *Hewitt s. n.;* between Sabaku and Lundu, *Clemens s. n.*, October 8, 1929; Upper Rejang River, Gat, *Clemens 21628;* Western Koetai, near Long Iboet, *Endert 2585;* near Lahoem, *Endert 1739;* Poeloe Laoet, above Kampong Soengeiparing, *Verhoef 83, 91;* Soengei Bloe-oe, *Jaheri 443;* Tepoh (Tepu), *Jaheri 1692;* Goenoeng Klam, *Hallier 2335.*

Known only from Borneo.

Among the above cited specimens, two, *Clemens 21628 and Clemens s. n.*, have longer flowers with finer and more even pubescence, and larger leaves with many more primary veins than the typical var. *villiferum* (Ridl.). Although very distinct in appearance, owing to the high variability within this species, as we interpret it, we do not assign any varietal name to this form.

26. **Syzygium multibracteolatum** (Merr.) comb. nov.

*Eugenia multibracteolata* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 219. 1917, Enum. Born. Pl. 431. 1921.

*Eugenia Lobbii* Ridl. Jour. Bot. **68**: 17. 1930.

Sarawak, Santubong, *Native collector 2240* (type, Herb. Manila), *Beccari 2127, Hewitt s. n.:* Dutch Borneo, Singkawang, *Polak 252.*

Known only from Borneo.

Belonging to the group with glaucous calyces, this species is readily distinguished by the large and thick ovate leaves with exceedingly short petioles and the somewhat persistent and conspicuous bracts and bracteoles of the panicles.

27. **Syzygium pterophorum** sp. nov.

Arbor 9–15 m. alta, glabra; ramis teretibus, atro-brunneis; ramulis 4-alatis, flavo-brunneis; foliis coriaceis, anguste ovatis vel lanceolatis apice longe acuminatis, acumine ± 2 cm. longo, basi rotundatis, 4–13.5 cm. longis, 1–4 cm. latis, supra olivaceis, subtus pallidioribus, costa supra impressa, subtus elevata, venis primariis supra impressis, subtus conspicuis, utrinque ad 16, in venam intramarginalem 1.5 mm. a margine confluentibus; venulis laxe reticulatis, ± obscuris; petiolo 3–4 mm. longo, alis ramulorum suboccultato; inflorescentiis terminalibus axillaribusque, ad 3 cm. longis; rachi 4-alata; ramis brevissimis; floribus ad apicem ramorum confertis, sessilibus; bracteis caducis, obovatis, circiter 3 mm. longis, concavis; calycis tubo 4 mm. longo, apice vix 2.5 mm. lato, lobis vix 1 mm. longioribus, ovatis, obtusis; staminibus elongatis, numerosis, antheris ellipticis, 0.4 mm. longis; fructibus ignotis.

British North Borneo, Mount Kinabalu, Colombon River, *Clemens 34380* (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York and Rijks Herb.), August 10, 1933, at about 1500–1650 m. alt.; Penibukan, *Clemens 31300*, January 16, 1933, ridge below camp, by Dumalon, 1200–1500 m. alt.; Mount Nunkok, *Clemens 32012, 35085, 32634;* Upper Kinabalu, *Clemens 50694*, Gurulau Spur, on crest, at 1500 m. alt.; Tenompok, *Clemens 29470*, May 2, 1932, at 1500 m. alt.; Mumungan River, *Clemens 33047*, May 1, 1933, at 1650 m. alt.

Although this species is very closely related to *Syzygium multibracteolatum* (Merr.), it differs in the elongate, narrower and thinner leaves with prominent venation, the more compact inflorescences, with very short branches, and the smaller and slightly pustulate calyces.

28. **Syzygium zeylanicum** (L.) DC. Prodr. **3**: 260. 1828; Wight Ic. **1**: *t. 73.* 1838; Merr. & Perry, Jour. Arnold Arb. **19**: 101, 224. 1938.

*Myrtus zeylanica* Linn. Sp. Pl. 472. 1753.
*Eugenia spicata* Lam. Encycl. **3**: 201. 1789; Koord. & Val. Meded. Lands Plant. **40**: 122. 1900 (Bijdr. Boomsoort. Java, **6**: 122).
*Eugenia zeylanica* Wight, Ill. **2**: 15. 1841; Duthie in Hook. f. Fl. Brit. Ind. **2**: 485. 1878; King, Jour. As. Soc. Bengal, **70** (2): 108. 1901 (Mater. Fl. Malay. Pen. **3**: 538); Gagnep. in Lecomte, Fl. Gén. Indo-Chine, **2**: 804. 1920; Merr. Enum. Born. Pl. 434. 1921; Ridl. Fl. Malay Pen. **1**: 738. 1922, non Willd.
*Syzygium bracteatum* Korth. Nederl. Kruidk. Arch. **1**: 205. 1847.
*Eugenia varians* Miq. Anal. Bot. Ind. **1**: 21. 1850, excl. syn. *S. rugosum* Korth.
*Syzygium coarctatum* Blume ex Miq. l. c., in syn.
*Eugenia myrtifolia* sensu Miq. Anal. Bot. Ind. **1**: 20. 1850, non Roxb.
*Myrtus lepidocarpa* Korth. ex Miq. l. c. in syn.
*Syzygium myrtifolium* Miq. Fl. Ind. Bat. **1** (1): 456. 1855.
*Jambosa bracteata* Miq. op. cit. 437.
*Eugenia antiseptica* sensu Ridl. Jour. Bot. **68**: 17. 1930, non O. Ktze.

British North Borneo, without definite locality, *Creagh s. n.;* Kampong Bokara, *Kandilis* (*B.N.B. For. Dept. 2838*); Mount Kinabalu, Dallas, *Clemens 27669;* Sandakan and vicinity, *Wood 811, 893, Castillo 591, Ramos 1353;* Ulo Soengei, *Mustapha 777:* Sarawak, *Native collector 262, 476, 1453;* near Kuching, *Haviland 122, Haviland & Hose 3386, Beccari 3074;* Matang, *Beccari 1301;* Marop, *Beccari 3155;* Mount Stupong, *Native collector 5118;* Mount Sengghai, *Native collector 5136:* Dutch Borneo, without definite locality, *de Vriese 32, Teysmann s. n.;* Goenoeng Lawak, *Korthals s. n.* (*E. myrtifolia* sensu Miq. non Roxb., Rijks Herb.); Western Koetai, near Moeara Moentai, *Endert 2020;* Sabentoeloeng, *Endert 1520;* Rantau, Pabaoengan, *Dachlan 14;* Landak, Ambarang, *de Leeuwen 116;* Asem, Pleihari, *Labohm 1954;* Samenggaris, *Amdjah 1054;* Mandan, *Polak 209;* Soengei Taboek, Penatang forest, Pandjang, *Dachlan 58* (*Z.O.B. 2417*); Martapoera, *Korthals s. n.* (*E. varians* Miq., *S. coarctatum* Bl., Rijks Herb.), *Kawakimi s. n.;* between Martapoera and Bandjermasin, *Winkler 3410.*

This species is found in China, India, Ceylon, Assam, Burma, Siam, Indo-China, the Malay Peninsula, Sumatra, Borneo and Java.

Although *Syzygium zeylanicum* (Linn.) DC. as here interpreted is perhaps somewhat in the nature of a collective species, we can see little reason for distinguishing more than one species on the basis of our present knowledge of the group.

*Clemens 27669* is apparently a good match for *Myrtus lepidocarpa* Korth., but, in our material, the characters hardly suffice to separate it from *S. zeylanicum* (Linn.) DC. There is an obvious tendency toward tetragonous or sulcate branchlets in certain collections of the Bornean material but apart from this they match the Indian specimens fairly well. In the southern part of the range of this species, the calyces tend to become strongly rugose (verruculose) rather than wrinkled-pustular (creased lengthwise) as in the more northern material, and the flower also is slightly smaller; these differences, however, do not appear to be specific but rather show the variability of the species over a wide range.

Korthals' specimen representing *S. bracteatum* Korth. was not found by Merrill (1930) at the Rijks Herbarium, but his species is supposedly conspecific with *S. zeylanicum* (Linn.) DC.

29. **Syzygium antisepticum** (Blume) comb. nov.

*Caryophyllus antisepticus* Blume in DC. Prodr. **3**: 262. 1828.
*Calyptranthus aromatica* Blume, Bijdr. 1092. 1826. non *Syzigium aromaticum* (L) Merr. & Perry.
*Eugenia macrorhyncha* Miq. Anal. Bot. Ind. **1**: 21. 1850.
*Myrtus acuminata* Korth. ex Miq. l. c., in syn.
*Jambosa aromatica* Miq. Fl. Ind. Bat. **1** (1): 436. 1855.
*Eugenia cuprea* Koord. & Val. Meded. Lands Plant. **40**: 125. 1900 (Bijdr. Boomsoort. Java, **6**: 125).
*Eugenia scolopophylla* Ridl. Jour. Bot. **68**: 17. 1930.

Sarawak, Selabat, *Haviland 695/119* (type of *E. scolopophylla*, Herb. Kew.); Mount Matang, *Clemens 20957;* without definite locality, *Native collector 1775* (distributed as *E. rugosa*): Dutch Borneo, Western Koetai, Long Poehoes, *Endert 4828;* Balikpapan, Goenoeng Sapingga, *Atjil 2054;* Tandjoeng, Pangelak, *Boschproefstation bb: 13954;* Goenoeng Batay, *Korthals* (type of *E. macrorhyncha*, Rijks Herb.); Oebah, Boekit Kasian, *Amdjah 63.*

Malay Peninsula, Sumatra, and Java.

Blume's actual type of *Calyptranthus aromatica* in the Rijks Herbarium has been examined by Merrill; there is also an isotype in the New York Botanic Garden Herbarium. Whether this and *Eugenia grata* Wight are conspecific we are not in a position to say since we have no authentic collections from the type locality of the latter species. The Gray Herbarium sheet with two labels, *Herb. Griffith* (*Kew Dist. 2364*), Burma and Malay Peninsula, and *Herb. Helfer* (*Kew Dist. 2364*), Tenasserim and Andamans, we believe to represent three different entities. One specimen associated with the Griffith label is unquestionably *S. zeylanicum* (L.) DC., the other is *S. lineatum* (DC.) Merr & Perry, the third associated with the Helfer label is apparently *S. antisepticum* (Blume). *King's collector 5414* (of which we have two sheets) labeled *E. grata* Wight is a very close match (except that the leaves are smaller) for this species as are also *Forbes 3147* and *2929* from Sumatra, but that statement does not hold for other specimens labeled *E. grata* Wight.

*Eugenia scolopophylla* Ridl. differs from the type only in that the leaves are more copiously puncticulate above and the minute glandular dots on the lower surface are more easily seen than in the type, but we do not consider that this slight difference is sufficient to warrant the distinguishing of a separate species, as intergrades occur in the series of specimens above cited.

The privilege of examining the types at the Rijks Herbarium has thrown some light on *Eugenia rugosa* (Korth.) Merr. Jour. Str. Branch Roy. As. Soc. **77**: 224. 1917, Enum. Born. Pl. 433. 1921. The specimen Merrill cited as representing Korthals' species in making the transfer to *Eugenia* does not represent true *S. rugosum* Korth. The actual type in the Rijks Herbarium is from Karrau and belongs to an entirely different group of species. There is another specimen so named in the Rijks Herbarium apparently representing a form of *Syzygium zeylanicum* (L.) DC. which Miquel erroneously interpreted as the type and called *Eugenia varians*. He states that Korthals' specific name was taken from the rugose calyx-tube which, however, Korthals himself described as "laevia"; possibly the name was selected because of the minutely glandular-pustulate lower leaf-surfaces.

Again, concerning *E. macrorhyncha* Miq., we are inclined to believe that the sterile type-specimen is only a young leafy branch of *Syzygium antisepticum* (Blume). Miquel himself, Fl. Ind. Bat. **1** (1): 436. 1855, observes, "ab hac (i. e. *Jambosa aromatica* Miq.) vix differt *Eugenia macrorhyncha* Miq.," and the greatest tangible difference which we have observed is in the texture of the leaves which are slightly thinner and scarcely as stiff as those of *S. antisepticum* (Blume). We have observed similar differences in specimens representing other species and suggest that it is the explanation here; further we can match this perfectly in sterile but not in flowering specimens.

Although Koorders & Valeton, l. c., reduce Blume's species without discussion to *Eugenia spicata* Lam., i. e. *S. zeylanicum* (L.) DC., to which it is indeed very closely allied, we are unable to maintain *E. cuprea* Koord. & Val. as an entity separate from this species.

30. **Syzygium kinabaluense** (Stapf) comb. nov.

*Eugenia kinabaluensis* Stapf, Trans. Linn. Soc. Bot. **4**: 152, *t. 11, f. 10–12.* 1894; Merr. Enum. Born. Pl. 429. 1921.

British North Borneo, Mount Kinabalu, *Haviland 1112* (type-collection), *Clemens 10626a;* Upper Kinabalu, Gurulau spur, *Clemens 51119*, base of Victoria Peak; Mount Nunkok, *Clemens 32829*, at 1650 m. alt.; Marai Parai, *Clemens 33054*, at 1650 m. alt.; Colombon River, *Clemens 32470, 33688;* Penataran River, *Clemens 32543*, at about 2250 m. alt.; Kamboranga, *Clemens 30307*.

Known only from Borneo.

A difficult and puzzling species owing to the great variability of the leaves, the apex being sometimes rounded, occasionally subemarginate, but mostly, in our specimens, tapering to a broad obtuse acumen, although all forms may appear on the same specimen. The leaves in most of our collections are larger than those of the type. The flowers of the above cited collections appear to be a good match for those of the type-collection except that the ovary is bilocular.

31. **Syzygium bankense** (Hassk.) comb. nov.

*Microjambosa (?) bankensis* Hassk. Hort. Bog. Descr. 276. 1858.

*Jambosa buxifolia* Miq. Fl. Ind. Bat. **1** (1): 1086. 1858, Suppl. **1**: 311. 1862.

*Microjambosa besukiensis* Hassk. ex Miq. Fl. Ind. Bat. Suppl. **1**: 311. 1862, in syn.

*Eugenia bankensis* Backer, Schoolfl. Java, 508. 1911.

*Eugenia besukiensis* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 226. 1917, **79**: 21. 1918, Enum. Born. Pl. 426. 1921.

Dutch Borneo, Western Koetai, near Benoewa Toewa, *Endert 1584;* Beneden-Matan, Landjoet,

*Schuitemaker 48* (*Boschproefstation bb: 14399*). Banka and the Philippines.

Perhaps *Arsat 695* and *Clemens 9509*, Sandakan, British North Borneo, also belong here. They differ from the other collections in their somewhat punctate leaves, but all are plants of low altitude. We have several sterile specimens which might be placed here except that inflorescence is essential to distinguish this and some other species very similar in habit.

The species was first described from material collected on the Island of Banka.

32. **Syzygium ovatifolium** sp. nov.

Arbor 24–30 m. alta; ramis teretibus, pallide brunneis, ramulis ultimis tetragonis; foliis ovatis, basi obtusiusculis, apice longe acuminatis, 2–4.5 cm. longis, 1–2.3 cm. latis, utrinque subconcoloribus, consperse minuteque punctatis, venis primariis in utraque pagina subaequaliter manifestis, costa supra impressa subtus elevata; petiolo ± 3 mm. longo; paniculis terminalibus axillaribusque, ± 2 cm. altis, rachi anguste alata, ramis 2–3 mm. longis, alabastris confertis, sessilibus, crasso-clavatis, circiter 5 mm. longis, apice 2.2 mm. latis; calycis tubo laevi, longitudinaliter rugoso, lobis circiter 1 mm. altis latisque, rotundatis, petalis singillatim deciduis, staminibus numerosis, antheris 0.4 mm. longis ellipticis; fructibus immaturis urceolatis.

Mount Kinabalu, Tenompok, *Clemens 28748* (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York, Leiden) March 9, 1932, at 1500 m. alt., *Clemens 29868*, June 10, 1932.

A note on the field label of the second collection tells us that both specimens came from the same tree, the type in bud and young flower, the other in young fruit.

In general habit this species most resembles *Syzygium zeylauicum* (L) DC. but the calyces are smooth and practically without pseudostipes.

33. **Syzygium exiguifolium** sp. nov.

Glabra; ramis teretibus, cinereo-brunneis, ramulis ultimis quadrangulis, cinnamomeis; foliis vix patentibus, ellipticis, basi late cuneatis, apice rotundatis vel obtusis, 0.5–1.5 cm. longis, 0.4–0.8 cm. latis, supra olivaceis, subtus pallidioribus, glandulis minutis parcius adspersis, costa supra impressa subtus elevata, vena intermarginali venisque primariis ad 9, subtransversis, subtus prominulis; petiolo 1–2 mm. longo, ruguloso; paniculis plerumque terminalibus, 10–13 mm. altis, rachi quadrangula, bracteis caducis; alabastris clavatis, sessilibus, 4.5–5 mm. longis, angulatis, longitudinaliter rugosis; calycis tubo 3 mm. longo, lobis 1 mm. longis, late oblongo-rotundatis; petalis singillatim vel calyptratim deciduis; antheris ovatis, connectivo ad apicem glanduloso-mucronato; fructibus ignotis.

British North Borneo, Mount Kinabalu, Marai Parai, *Clemens 33201* (type, Herb. Arnold Arb.; isotypes at Buitenzorg, New York and Rijks Herb.), at 1500 m. alt.; Penataran Basin, *Clemens 34207*, at about 2000 m. alt.: Dutch Borneo, Boekit Raja, *Molengraaff B. 3459*, at 2000 m. alt.

The leaves of this species, although very much like those of *Syzygium gaultherioides* (Ridl.) in outline and venation, are larger and longer petioled; the inflorescence, too, is distinctly different in having a definite rachis and with flowers nearly twice as large as are those of the latter species.

34. **Syzygium polycladum** sp. nov.

Arbor parva, circiter 4.5 m. alta; ramis cinereis, cortice rimoso; ramulis tetragonis, cinnamomeis; foliis anguste ovatis vel ellipticis, basi subrotundatis vel valde obtusis, apice obtuse acuminatis vel obtusis, 6–9 mm. longis, 3–5 mm. latis, supra atro-, subtus flavo-viridibus, costa in utraque pagina depressa, venis primariis oculo nudo nullis; petiolo circiter 1 mm. longo; paniculis plerumque terminalibus, vix 1 cm. longis; alabastris clavatis, breviter stipitatis, ± 5.5 mm. longis; calycis tubo 4.5 mm. longo, vix 2.5 mm. lato, lobis circiter 1 mm. longis latisque, rotundatis; petalis singillatim vel calyptratim deciduis; staminibus numerosis; antheris vix 0.4 mm. longis; fructibus ignotis.

British North Borneo, Mount Kinabalu, Marai Parai, *Clemens 35086*, April 13, 1933, 600–900 m. alt.; West Marai Parai, *Clemens 32535*, at 1200 m. alt.; Penibukan, *Clemens 30940* (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York and Leiden), January 10, 1933, on table rock, left ridge above camp in rotten moss, leaves, etc.; Penataran, *Clemens 34208*, at 200 m. alt.: Dutch Borneo, Bengkajang, *B. de Jong 531* (*Boschproefstation bb: 9668*).

The very small and divaricate or often reflexed leaves are characteristic of this species. It most resembles *Syzygium perparvifolium* (Merr.) in habit but the inflorescence has a definite axis and the flowers are most like those of *S. bankense* (Hassk.).

35. **Syzygium gaultherioides** (Ridl.) comb. nov.

*Eugenia gaultherioides* Ridl. Jour. Bot. **68**: 16. 1930.

Sarawak, Bongoh Mountain, near Tegora, *Haviland 2057* (type, Kew Herb.; phot.).

Known only from Borneo.

*Syzygium gaultherioides* (Ridl.) is very closely allied to *S. perparvifolium* (Merr.) but the leaves are slightly smaller, rounded to obtuse rather than acuminate at the apex and the veins are visible on the under surface.

36. **Syzygium perparvifolium** (Merr.) comb. nov.

*Eugenia perparvifolia* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 220. 1917, Enum. Born. Pl. 432. 1921.

Sarawak, Mount Santubong, *Foxworthy 454* (type, Herb. Manila): Dutch Borneo, Soengei Kenepai, *Hallier 2037;* between Soengei and Goenoeng Kenepai, *Hallier 1927;* Goenoeng Damoes, *Hallier 512, 582;* Poeloe Madjang, *Teysmann 7886;* Manan, *Polak 222.*

Distribution: Borneo.

The above cited specimens appear to be typical *S. perparvifolium* (Merr.). *Haviland 2091*, near Kuching, Sarawak, and *Endert 3545*, West Koetai, differ in having slightly more elongate leaves with rather obvious venation and less evidently shining surfaces.

37. **Syzygium rejangense** sp. nov.

*Eugenia papillosa* sensu Ridl. Jour. Bot. **68**: 12. 1930, non Duthie.

Arbor glabra, circiter 15 m. alta; ramulis circiter 7 mm. diametro, brunneis, perspicue 4-angulatis et anguste 4-alatis; foliis rigide coriaceis, late oblanceolatis, usque ad 35 cm. longis, 9 cm. latis, sessilibus, basi perspicue auriculato-cordatis, semiamplexicaulibus, apice tenuiter acuminatis, supra ex olivaceis brunneis, subtus pallidioribus, nervis primariis utrinque circiter 30, supra obscuris subtus perspicuis, elevatis, in venam intramarginalem 2 ad 3 mm. a margine confluentibus; inflorescentiis terminalibus, amplis, breviter pedunculatis, circiter 15 cm. longis, 15–20 cm. latis, rachi ramisque ± 4-angulatis, ramis oppositis, inferioribus ad 10 cm. longis; ramulis ultimis trifloris; floribus sessilibus, albidis; calycibus clavato-obconicis, circiter 1.3 cm. longis, 7 mm. latis, pallidis, glanduloso-punctatis, sepalis 4, rigidis, late ovato-rotundatis, circiter 3 mm. latis; staminibus numerosis, filamentis styloque circiter 2 cm. longis.

Sarawak, Upper Rejang River, Kapit and Gat, *Clemens 21204* (type, Herb. Arn. Arb.; isotype, New York Bot. Gard. Herb.), *21632*, July 6 and 29, 1929, a tree growing along the river margin: Dutch Borneo, Western Koetai, near Long Petak, *Endert 4074;* near Long Poehoes, *Endert 2506;* Soengei Magne, *Jaheri 663;* Sebalama, *Teysmann 10849;* above Mahakam, Soengei Boh, *Henar 41* (*Boschproefstation bb: 20634*).

*Teysmann 10849* which Ridley cites as representing *Eugenia papillosa* Duthie as "quite like the plant of the Malay Peninsula except that the stem is four-angled" is not Duthie's species which has terete or at most subtetragonous branchlets, and which, moreover, has the lower surfaces of its leaves, young branches and pedicels covered with a rusty-colored scurf; the Bornean plant is glabrous. *Teysmann 10849* represents *S. rejangense* Merr. & Perry rather than *S. papillosum* (Duthie). Duthie in Hook. f. Fl. Brit. Ind. **2**: 495. 1878 mentions *Beccari 2521* from Borneo, following his description of the species, as having a similar clothing of red scurf; this is *S. hirtum* (Korth.) var. *villiferum* (Ridl.) Merr. & Perry (*E. villifera* Ridl., so named by Ridley but not cited in the original description of his species).

38. **Syzygium kiauense** (Merr.) comb. nov.

*Eugenia kiauensis* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 209. 1917, Enum. Born. Pl. 429. 1921.

British North Borneo, Mount Kinabalu, Kiau, *Clemens 10132* (type, Herb. Manila; isotype, Herb. Arn. Arb.); Marai Parai Spur, *Clemens 11104;* Dallas, *Clemens 26155, 26465, 26565, 26815;* East Dallas, *Clemens 30308.*

Known only from Mount Kinabalu.

In the original description of this species Merrill notes that the specimen *Clemens 11104* has the leaves distinctly glandular on the lower surface; that is also true of the other collections here cited. The leaves often tend to be obovate-elliptic and the inflorescence is sometimes up to 15 cm. high and broad.

39. **Syzygium Panzeri** sp. nov.

Arbor parva; ramulis quadrangulis, 2–2.5 mm. diametro, cinereo-brunneis; foliis lanceolato-ellipticis, 9–17 cm. longis, 2.5–6 cm. latis, basi obtusis vel rotundatis, apice obtuse acuminatis, chartaceo-coriaceis, supra brunneis vel olivaceis, vix puncticulatis, subtus pallidioribus, glandulis minutis conspersis, venis primariis utrinque circiter 10–12, subtus prominentibus, patulo-ascendentibus, in venam submarginalem 3–5 mm. a margine distantem confluentibus, venulis laxe reticulatis; petiolo crassiusculo, 2–4 mm. longo; inflorescentia parva compacta, axillari terminalique, rachi 2–4 mm. longa, vix ramosa; floribus sessilibus, in quove racemo ad 8; alabastris turbinatis, circiter 1.2 cm. longis, apice 0.6 cm. latis; calycis lobis externis 2

mm. longis, disco staminifero margine interno prominulo, stylo longo; fructibus ignotis.

Dutch Borneo, Tanah-Boemboe, near Kampong Baroe (Batoe-litjin), *Verhoef 67* (type, Herb. Buitenzorg; isotype, Rijks Herb.), December 4, 1928, at ± 10 m. alt.; Western Koetai, near Mount Kemoel, *Endert 4305*, at ± 1600 m. alt.; near Long Petak, *Endert 3517*, at ± 500 m. alt.

We have been unable to match the above cited material with our other collections or descriptions, and yet, it is with much hesitancy that we propose a new species in this particular complex. *S. Panzeri* very closely resembles *S. heterocladum* (Merr.) as to foliar and branchlet characters, but the flowers are distinctly sessile in contrast to the obviously pedicelled ones of the latter species. The species is dedicated to G. W. F. Panzer, co-author of the "Vollständiges Pflanzensystem" (1777–88).

40. **Syzygium heterocladum** (Merr.) comb. nov.

*Eugenia heteroclada* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 218. 1917, Enum. Born. Pl. 428. 1921.

*Eugenia Scortechinii*, var. *parvifolia* sensu Ridl. Jour. Bot. **68**: 11. 1930, p. p., non King.

British North Borneo, Mount Kinabalu, Kiau, *Clemens 10127* (type, Herb. Manila; isotype, Herb. Arn. Arb.); Penibukan, *Clemens 31121, 31286;* Mount Nunkok, *Clemens 32896;* West Marai Parai, *Clemens 32496:* Sarawak, Matang, *Haviland 1048.*

Known only from Borneo.

This species is very close to *S. lancifolium* (Miq.) and *S. insigne* (Blume). It is separable from the former chiefly by the larger and fewer flowers of the inflorescence and the slightly different direction of the primary veins. It is distinguished from the latter by the definitely winged (just below each node) internodes, the sparsely, if at all, puncticulate or glandular leaves, and the subtransverse primary veins.

41. **Syzygium insigne** (Blume) comb. nov.

*Jambosa insignis* Blume, Mus. Bot. Lugd.-Bat. **1**: 100. 1849, in part; Merr. Enum. Born. Pl. 428. 1921, excl. syn. *Jambosa lanceolata* Korth.

*Jambosa lancifolia* Miq. Fl. Ind. Bat. **1** (1): 427. 1855, in part.

*Eugenia Scortechinii*, var. *parvifolia* sensu Ridl. Jour. Bot. **68**: 11. 1930, p. p., non King.

Dutch Borneo, Martapoera, *Korthals s. n.* (type, Rijks Herb.); Bandjermasin, *Motley 644.*

Known only from Borneo.

Although this species in general habit suggests *S. lilacinum* (Merr.), the branchlets are 4-angled, the leaf-blades are more copiously puncticulate, the venation is less obvious, the flowers are very much larger and the buds are elongate pyriform with a long tapering base; whereas, in *S. lilacinum* (Merr.) the branchlets are terete, and the flower-buds are very short-pyriform with a short base, the more or less globose upper part being about two-thirds the length of the entire bud. It is probably more closely related to *S. lancifolium* (Miq.) from which it differs in that the leaves are broader toward the short-rounded or subcordate base, the lower surface is copiously dotted with minute glands, the upper profusely punctate, and the flowers are long-pedicellate (pedicels ± 1.5 cm. long) for this particular group of species.

*Motley 644* differs from the type in that the leaves are generally smaller, the venation tends to be more obvious on the lower surface, and the branchlets appear more sharply angled; the specimens are not strictly comparable, however, as the type shows a year's growth and *Motley 644* the new shoots of the season. We do not believe that they differ specifically.

42. **Syzygium Kingii** (Merr.) comb. nov.

*Eugenia Kingii* Merr. Jour. Str. Branch Roy. As. Soc. **79**: 22. 1918, Enum. Born. Pl. 429. 1921.

*Eugenia Scortechinii*, var. *parvifolia* sensu Ridl. Jour. Bot. **68**: 11. 1930, p. p., non King.

British North Borneo, without definite locality, *Wood 947, Creagh s. n.;* Batu Lapan, *Wood 1962;* Sandakan, *Agama 720, Evangelista 768;* Labuk region, *Villamil 252;* Balambangan Island, *Kloss 19272:* Sarawak, Bongaya, *Ridley 9071* (type, Herb. Singapore; phot.).

Apparently endemic.

We are not at all sure that *Kloss 19272* really belongs in this species. The leaves are much larger than in any other collection cited and the flowers are somewhat smaller than those of the type. It does not exactly match any collections at our disposal; but, the species of this group are close and the material of many of them is too scanty for us to say with any certainty what are real specific differences or what are only variations within a species. Altogether too many species have been described from fragmentary material.

43. **Syzygium monanthum** (Merr.) comb. nov.

*Eugenia monantha* Merr. Jour. Str. Branch

Roy. As. Soc. **79**: 22. 1918, Enum. Born. Pl. 430. 1921.

Sarawak, Rejang, Belaga, *Haviland 2146* (type, Herb. Singapore; phot.); banks of Kanowit, *Beccari 3871*.

Apparently endemic.

A species readily separated from the other members of this group by the slenderly acuminate leaves and the 4-angled tips of the branchlets.

44. **Syzygium ampullarium** (Stapf) comb. nov.

*Eugenia ampullaria* Stapf, Trans. Linn. Soc. Bot. **4**: 153, *t. 11, f. 13*. 1894; Merr. Jour. Str. Branch Roy. As. Soc. **79**: 21. 1918, Enum. Born. Pl. 425. 1921.

British North Borneo, Mount Kinabalu, *Haviland 1508/1096* (type-collection); Upper Kinabalu, *Clemens 27830, 30245;* Gurulau spur, *Clemens 50870*.

Endemic.

Mrs. Clemens collected this species in good flowering condition. The inflorescence is short, as originally described, "vix e foliis exsertae," with several large flowers (flower-buds 15–18 mm. long, 7–9 mm. in diameter at the apex) clustered at the tips of short branchlets and subtended by reduced leaves (we should call these leafy bracts except that they are petiolate). The species is amply distinct by the short-petiolate and rounded-ovate leaves and the short and compact inflorescence.

45. **Syzygium Creaghii** (Ridl.) comb. nov.

*Eugenia Creaghii* Ridl. Jour. Bot. **68**: 14. 1930.
*Eugenia Woodii* Merr. Jour. Str. Branch Roy. As. Soc. **86**: 336. 1922, Univ. Calif. Pub. Bot. **15**: 216. 1929, non Dummer, 1912.

British North Borneo, Bettotan Valley, *Wood 688* (type of *E. Woodii*, Herb. Manila); Sandakan and vicinity, *Ramos 1262, 1803, 1804, Elmer 20120;* Tawao, *Elmer 21361:* Dutch Borneo, Tikoeng, *Amdjah 902;* West Koetai, Kombeng, *Endert 5237*.

Reported only from Borneo.

In describing *Eugenia Creaghii* in 1930, Ridley failed to recognize its identity with the very strongly marked species described by Merrill in 1922 as *E. Woodii;* the latter specific name is invalid as it is a later homonym and accordingly Ridley's name is accepted. *Creagh 7* and *Burbidge s. n.* on which *E. Creaghii* Ridl. was based are identical with *E. Woodii* Merr. Probably *Ramos 1857*, a sterile specimen, also belongs to this species. The primary veins are a little farther apart than in most specimens above cited and the base of the leaf is more tapering than rounded.

46. **Syzygium mappaceum** (Korth.) comb. nov.

*Jambosa mappacea* Korth. Nederl. Kruidk. Arch. **1**: 200. 1847; Walp. Ann. **2**: 638. 1851–52.

Branchlets terete, light or grayish brown; leaves ternate, practically sessile (the midrib somewhat abruptly enlarged 1–1.5 cm. from the base of the leaf simulating a petiole), obovate-oblong narrowed to a rounded or subcordate base, primary veins conspicuous below, strongly ascending, somewhat irregularly arranged 1–2 cm. apart, arcuately anastomosing about 5 mm. within the margin, secondary veins loosely reticulated; inflorescence axillary and terminal, common peduncle ± 1 cm. long; flowers clustered, single at the apex of branches up to 1.5 cm. long; buds pyriform, about 1.5 cm. long and near the apex 1–1.5 cm. in diameter; calyx-lobes 4, the two larger approximately 4 mm. long and twice as wide, the smaller about half that size; petals falling separately; fruit unknown.

Dutch Borneo, without definite locality, *Korthals s. n.* (type, Rijks Herb.); Kapoeas, *Teysmann 8228*.

Apparently endemic.

Hitherto this species has been reduced to *E. formosa* Wall., but we do not believe the latter, which is not surely known to occur in the Malay Peninsula is apt to be found in Borneo. Further, the inflorescence of *E. formosa* Wall. is lateral in the axils of fallen leaves; whereas, that of *S. mappaceum* (Korth.) is axillary and terminal. In *Teysmann 8228* the inflorescence is practically sessile with flowers on pedicels about 5 mm. long; nevertheless, we believe the collection belongs to this species.

47. **Syzygium Blumei** (Steud.) comb. nov.

*Eugenia Blumei* Steud. Nom. ed. 2, **1**: 601. 1840.
*Eugenia angustifolia* Blume, Flora, **7**: 291. 1824, non Lam. (1789).
*Myrtus hypericifolia* Blume, Bijdr. 1082. 1826, non Salisb. (1796).
*Jambosa hypericifolia* DC. Prodr. **3**: 287. 1828; Blume Mus. Bot. Lugd.-Bat. **1**: 101. 1849; Miq. Fl. Ind. Bat. **1** (1): 425. 1855.
*Eugenia lancifolia* Miq. Anal. Bot. Ind. **1**: 17. 1850; Merr. Enum. Born. Pl. 429. 1921 (non *Jambosa lancifolia* Miq. Fl. Ind. Bat. **1** (1): 427. 1855, nec *Jambosa lanceolata* Korth.).
*Eugenia hypericifolia* Koord. & Val. Meded. Lands Plant. **40**: 69. 1900 (Bijdr. Boomsoort.

Java, **6**: 69); Atlas Baumart. Java, **3**: *f. 456*. 1915.

Dutch Borneo, without definite locality, *Korthals s. n.* (type of *Eugenia lancifolia* Miq., Rijks Herb.).

Distribution: Java.

The only material we have seen which, as we suppose (for we are fully aware of the uncertainty accompanying the identification of sterile material), is a good match for this sterile collection (*Korthals*) is a specimen (likewise sterile) from Java collected by Blume and labeled in his handwriting *Myrtus hypericifolia*. This is accepted as synonymous with Blume's earlier *Eugenia angustifolia* by Koorders & Valeton. Although we have not seen any authentic material representing the latter species, the descriptions of the two are so similar that we believe Blume in publishing *Myrtus hypericifolia* was merely renaming his *E. angustifolia*. Both these binomials are later homonyms, hence the first valid specific epithet is that given by Steudel.

It is here noted that Miquel in describing *Eugenia lancifolia* cited Korthals' binomial, "An *Jambosa lanceolata* Korth. . . . e Sumatra?" The Bornean type is remote from the Sumatran form and represents a very different species. Further Miquel erred in placing his *Eugenia lancifolia* under his later *Jambosa lancifolia* as the latter is described (and the named specimens verify this) as having 4-angled branchlets. We believe that they represent two distinct species.

*Syzygium Blumei* (Steud.) appears to be closely related to *S. insigne* (Blume) but the leaves are thinner and pale green when dry, and the branchlets are terete and pale. In the latter character the species suggests a relationship with *S. lilacinum* (Merr.) but the inflorescence of the latter is much more compact.

48. **Syzygium pseudoformosum** (King) comb. nov.

*Eugenia pseudoformosa* King, Jour. As. Soc. Bengal, **70** (2): 83. 1901 (Mater. Fl. Malay. Pen. **3**: 513); Ridl. Fl. Malay Pen. **1**: 725. 1922; Craib, Fl. Siam. Enum. **1**: 657. 1931.

*Eugenia formosa* sensu King, op. cit. 80; Koord. & Val. Meded. Lands Plant. **40**: 73. 1900 Bijdr. Boomsoort. Java, **6**: 73), Atlas Baumart. Java, **3**: *f. 459, 460*. 1915, non Wall.

*Eugenia nemoricola* Ridl. Jour. Str. Branch Roy. As. Soc. **61**: 9. 1912.

Dutch Borneo, Western Koetai, Kombeng, *Endert 5246*, small tree ± 5 m. high.

Distribution: Siam, Malay Peninsula, and Java.

Our specimen is a good match for *King's collector 3401* and *Nur 19979* from Perak and Johore respectively. The species is fairly well marked by the very short inflorescence and the thick and roughish almost corky petiole which abruptly joins the smooth and narrow midrib of the leaf.

Ridley, Jour. Str. Branch Roy. As. Soc. **77**: 64. 1918, points out that *E. pseudoformosa* King is a much smaller tree or shrub than *E. formosa* Wall. which doubtfully occurs on the Malay Peninsula. Koorders & Valeton begin their Latin diagnosis of *E. formosa* Wall. thus, "Arbuscula vel arbor parva." This together with the figure of the very characteristic petiole and the short inflorescence, Atlas, Baumart. Java, **3**: *f. 459*. 1915, seems to us rather convincing evidence that the species which Koorders & Valeton designated as *E. formosa* Wall. is really *E. pseudoformosa* King. *E. Zollingeriana*, var. *abbreviata* Koord. & Val. is a close ally.

49. **Syzygium lilacinum** (Merr.) comb. nov.

*Eugenia lilacina* Merr. Univ. Calif. Pub. Bot. **15**: 219. 1929.

British North Borneo, Tawao, *Elmer 21280* (type, Herb. Univ. Calif.; isotypes at Herb. Arn. Arb., Gray and New York Bot. Gard.).

Known only from Borneo.

This species is very similar in habit to *S. insigne* (Blume) but differs in having much smaller flowers, terete (not 4-angled) branchlets, and leaves with the primary veins impressed above and much more prominent beneath.

50. **Syzygium anthicum** (Ridl.) comb. nov.

*Eugenia anthica* Ridl. Jour. Bot. **68**: 11. 1930.

Sarawak, near Kuching, *Haviland & Hose 3213* in part (type, Kew Herb.).

Known only from Borneo.

In our material there is no collection corresponding to this type. It appears to be very distinct in the obscure foliar venation, only the midrib and the submarginal vein being obvious on the lower surface of the smaller leaves. The inflorescence is compact with a rachis about 4 mm. long.

51. **Syzygium Jambos** (L.) Alston, Handbk. Fl. Ceyl. **6** (Suppl.): 115. 1931; Merr. & Perry, Jour. Arnold Arb. **19**: 114, 217. 1938.

*Eugenia Jambos* L. Sp. Pl. 470. 1753; F.-Vill. Novis. App. 84. 1880; Vidal Sinopsis Atlas,

26, *t. 49, f. E.* 1883, Phan. Cuming. Philip. 112. 1885, Rev. Pl. Vasc. Filip. 131. 1886; Lour. Fl. Cochinch. 307. 1790, ed. Willd. 375. 1793; Willd. Sp. Pl. **2**: 959. 1800; Roxb. Fl. Ind. ed. 2, **2**: 494. 1832; Wight, Ill. **2**: 14. 1841; Miq. Anal. Bot. Ind. **1**: 17. 1850; Kurz, Jour. As. Soc. Bengal, **46** (2): 69. 1877, For. Fl. Brit. Burma, **1**: 495. 1877; Duthie in Hook. f. Fl. Brit. Ind. **2**: 474. 1878; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23**: 297. 1887; Koord. & Val. Meded. Lands Plant. **40**: 53. 1900 (Bijdr. Boomsoort. Java, **6**: 53); King, Jour. As. Soc. Bengal, **70** (2): 82. 1901 (Mater. Fl. Malay. Pen. **3**: 512); Becc. Nelle Foreste di Born. 598. 1902; C. B. Rob. Philip. Jour. Sci. Bot. **4**: 369. 1909; Merr. Fl. Manila, 352. 1912; Dunn & Tutcher, Kew Bull. Add. Ser. **10**: 104. 1912; Koord. & Val. Atlas Baumart. Java, **3**: *f. 444.* 1914; Merr. Herb. Amboin. 397. 1917, Sp. Blancoanae, 290. 1918; Gagnep. in Lecomte, Fl. Gén. Indo-Chine, **2**: 834. 1921; Merr. Enum. Born. Pl. 428. 1921; Ridl. Fl. Malay Pen. **1**: 724. 1922; Merr. Enum. Philip. Pl. **3**: 168. 1923; Setchell, Univ. Calif. Pub. Bot. **12**: 198. 1926; Merr. Lingnan Sci. Jour. **5**: 136. 1927; Walker, Lingnan Sci. Jour. **6**: 133. 1928; Craib, Fl. Siam. Enum. **1**: 647. 1931; Merr. Trans. Amer. Phil. Soc. **24** (2): 285. 1935.

*Eugenia malaccensis* sensu Lour. Fl. Cochinch. 306. 1790, ed. Willd. 374. 1793; Blanco, Fl. Filip. ed. 1, 415. 1837, ed. 2, 290. 1845, ed. 3, **2**: 173, *t. 170.* 1878, non Linn.

*Myrtus Jambos* HBK. Nov. Gen. Sp. Pl. **6**: 144. 1823.

*Jambosa vulgaris* DC. Prodr. **3**: 286. 1828; Hook. & Arn. Bot. Beechey's Voy. 188. 1833; Wight & Arn. Prodr. **1**: 332. 1834; Bot. Mag. **61**: *t. 3356.* 1834; Wight. Ic. **2**: *t. 435.* 1843; Benth. Fl. Hongk. 120. 1861; Gamble, Fl. Madras, **1**: 474. 1919.

*Jambosa Jambos* Millsp. Field Columb. Mus. Bot. **2**: 80. 1900.

British North Borneo, Sandakan and vicinity, *Ramos 1858, 1859, Puasa* (*B. N. B. For. Dept. 3707*): Dutch Borneo, without definite locality, *Korthals s. n.*

Widely cultivated from China and India southward, now occurring in most tropical countries.

52. **Syzygium medium** (Korth.) comb. nov.

*Jambosa media* Korth. Nederl. Kruidk. Arch. **1**: 199. 1847; Blume, Mus. Bot. Lugd.-Bat. **1**: 98. 1849: Miq. Anal. Bot. Ind. **1**: 28. 1850, Fl. Ind. Bat. **1** (1): 424. 1855; Walp. Ann. **2**: 637. 1851–52; Merr. Enum. Born. Pl. 430. 1921.

Sarawak, Upper Rejang River, Gat, *Clemens 21631;* rapids of the Rejang River, *Beccari 3825:* Dutch Borneo, Arenawe, *Korthals* (type, Rijks Herb.); Sedalir, *Amdjah 244;* Koetai, *Witkamp 15* in part; Pentjangan, *Amdjah 340;* Oeloe Boeleng, *Amdjah 398;* Martapoera, *Boschproefstation 1847;* Soengei Ikang, *Jaheri 1165;* above Mahakam, Long Toejoeh, *Henar 69;* Soengei Boh, *Henar 42* (*Boschproefstation bb: 20635*).

Probably endemic to Borneo.

*Syzygium medium* (Korth.) differs from *Eugenia polypetala* Wight in having chiefly opposite leaves (verticillate in part of the collection from Martapoera) with slightly longer and more slender petioles, terminal and axillary inflorescence and flowers with four or five petals. If the foliar arrangement and the corolla-character of *E. polypetala* Wight are variable, *S. medium* (Korth.) is scarcely separable, at least in herbarium material; yet, Burma and Borneo would be a very disrupted specific range.

The leaves are narrower than those of *S. Jambos* (L.) Alston and usually equally narrowed from the middle toward either extremity.

53. **Syzygium erythranthum** sp. nov.

Rami teretes; ramulis obtuse quadrangulis, crassiusculis, 3–5 mm. diametro, cinereo-brunneis, cortice laevi; foliis coriaceis, ellipticis, 5.5–10 cm. longis, 3.5–4.5 cm. latis, basi apiceque obtusis vel acutiusculis, haud pellucidis, in utraque pagina glandulis nigris parvisque praeditis, costa supra impressa, subtus subcarinata, venis primariis supra obscuris, subtus manifestis, 6–8 mm. remotis, venulis inconspicuis; petiolo 7–9 mm. longo, longitudinaliter ruguloso; inflorescentiis terminalibus, ± 6 cm. altis, e basi ramosis, rachi obtuse tetragona, ramis brevibus; alabastris elongato-obconicis, ± 15 mm. longis, apice circiter 9 mm. latis, copiose glandulosis, pedicellatis, pedicellis ± 5 mm. longis; calycis lobis 4, inaequalibus, exterioribus circiter 3 mm. longis, interioribus ± 5 mm. longis; petalis singillatim deciduis; staminibus ± 2 cm. longis, antheris circiter 0.7 mm. longis, ellipticis, connectivo in apice glanduloso-mucronato; fructibus ignotis.

British North Borneo, Mount Kinabalu, Colombon River, *Clemens 33950* (type, Herb. Arn. Arb.; isotypes

at Buitenzorg, New York, and Rijks Herb.), July 12, 1933, at about 2100–2400 m. alt.

The collector does not indicate whether this plant is a shrub or a tree, the only comment on the label being "Flower red, handsome."

54. **Syzygium garcinifolium** (King) comb. nov.

*Eugenia garcinifolia* King, Jour. As. Soc. Bengal, **70** (2): 90. 1901 (Mater. Fl. Malay. Pen. **3**: 520); Ridl. Fl. Malay Pen. **1**: 730. 1922.

Dutch Borneo, Pembliangan, *Amdjah 855*.

Distribution: Malay Peninsula, Sumatra.

A species well marked by the large thick leaves with rather conspicuous reticulations, the thick (5–7 mm.) angled branchlets and the large flowers. *S. garcinifolium* (King) was described from the Malay Peninsula, and also has been reported from Sumatra.

55. **Syzygium Endertii** sp. nov.

Arbor glabra ± 10 m. alta; ramulis subteretibus vel compressis vel sulcatis, fuscis, ± 3 mm. diametro; foliis coriaceis, ellipticis vel oblongo-ellipticis, 11–17 cm. longis, 4.5–8 cm. latis, basi rotundato-obtusis, apice abrupte acutis vel acuminatis leviterque recurvis, supra olivaceis ± adsperse punctatis, subtus badiis interdum puncticulatis, costa supra subcanaliculata, subtus prominenti, venis primariis ± 20 rectis utrinque perspicuis, in venam intramarginalem confluentibus, venulis laxe reticulatis; petiolo 1–1.5 cm. longo, canaliculato; paniculis terminalibus vel axillaribus vel lateralibus, 6–8 cm. longis; floribus in ramulis ultimis singulis vel in triadibus dispositis, sessilibus, alabastris 11–14 mm. longis, apice circiter 8 mm. latis, obovoideis, basi stipitatis, stipite ± 3 mm. longo; calycis lobis 2.5–3 mm. longis, rotundatis; petalis singillatim deciduis; staminibus numerosis, antheris ellipticis.

Dutch Borneo, Western Koetai, near Kampong Sabentoeloeng, *Endert 1523* (type, Herb. Buitenzorg), July 25, 1925, at ± 10 m. alt.; Soengei Tawah forest, *Abdoelkahar* (*Z. O. B. 2457*); Boentok, Donau Sanggo, *Obi 2398*.

This species is closely allied to *Syzygium kuchingense* (Merr.), but the flowers are larger and single or in threes at the tips of the branches, rather than clustered. The calyx is obovoid, gradually tapering to the pseudostipe, in contrast to the cupulate and abruptly narrowed calyx of *S. kuchingense* (Merr.). The leaves of these two species are so much alike as to be confused readily, yet we do not believe that the flowers of one species could vary so greatly both in size and in shape. We tentatively refer here the following collections:

British North Borneo, Tawan Island, *Kamis* (*B. N. B. For. Dept. 3027*); Trusan Giong, *Kamis* (*B. N. B. For. Dept. 2992*). These two collections unquestionably represent the same species, which appears to be closely allied to, although perhaps not conspecific with, *S. Endertii* Merr. & Perry. Owing to their nondescript character we have hesitated to describe them without fuller representation.

56. **Syzygium samarangense** (Blume) Merr. & Perry, Jour. Arnold Arb. **19**: 115, 216. 1938.

*Myrtus samarangensis* Blume Bijdr. 1084. 1826.

*Jambosa samarangensis* DC. Prodr. **3**: 286. 1828; Korth. Nederl. Kruidk. Arch. **1**: 201. 1847; Blume, Mus. Bot. Lugd.-Bat. **1**: 95. 1849.

*Eugenia javanica* Lam. Encycl. **3**: 200. 1789; Kurz, Jour. As. Soc. Bengal, **46** (2): 69. 1877, For. Fl. Brit. Burma, **1**: 494. 1877; Duthie in Hook. f. Fl. Brit. Ind. **2**: 474. 1878; Koord. & Val. Meded. Lands Plant. **40**: 63. 1900 (Bijdr. Boomsoort. Java, **6**: 63); King, Jour. As. Soc. Bengal, **70** (2): 81. 1901 (Mater. Fl. Malay Pen. **3**: 511); C. B. Rob. Philip. Jour. Sci. Bot. **4**: 363. 1909; Merr. op. cit. **9**: 120. 1914; Koord. & Val. Atlas Baumart. Java, **3**: *f. 452*. 1915; Merr. Interpret. Amboin. 395. 1917, Jour. Str. Branch Roy. As. Soc. **79**: 20. 1918; Gagnep. in Lecomte, Fl. Gén. Indo-Chine, **2**: 837. 1921; Merr. Enum. Born. Pl. 428. 1921; Ridl. Fl. Malay Pen. **1**: 726. 1922, Jour. Bot. **68**: 11. 1930; Guillaumin, Jour. Arnold Arb. **12**: 255. 1931; Kanehira, Bot. Mag. Tokyo, **45**: 334. 1931; Craib, Fl. Siam. Enum. **1**: 647. 1931; Merr. Lingnan Sci. Jour. **13**: 41. 1934, non *Syzygium javanicum* Miq.

*Jambosa obtusissima* DC. Prodr. **3**: 287. 1828; Korth. Nederl. Kruidk. Arch. **1**: 200. 1847.

*Jambosa alba* Blume, Mus. Bot. Lugd.-Bat. **1**: 94. 1849; Miq. Fl. Ind. Bat. **1** (1): 413. 1855.

*Jambosa samarangensis* DC. var. *heteromorpha* Blume, op. cit. 96.

British North Borneo, Sandakan and vicinity, *Wood 816;* Papar, *Telado* (*B. N. B. For. Dept. 1918*); Marotai, *Maidin* (*B. N. B. For. Dept. 3050*): Sarawak, Kapit, Upper Rejang River, *Clemens 21198, 21202:* Dutch Borneo, Poeloe-Lampei, *Korthals s. n.;* without definite locality, *Teysmann s. n., Korthals s. n.*

Frequent in cultivation, indigenous in the Malaysian region.

57. **Syzygium pachyphyllum** (Kurz) comb. nov.

*Eugenia pachyphylla* Kurz, Prelim. Rep. For. Veg. Pegu, App. A. lxii, App. B. 51. 1875, Jour. As. Soc. Bengal, **46** (2): 64, 68. 1877, For. Fl. Brit. Burma, **1**: 490. 1877; Duthie in Hook. f. Fl. Brit. Ind. **2**: 477. 1878; King, Jour. As. Soc. Bengal, **70** (2): 89. 1901 (Mater. Fl. Malay. Pen. **3**: 519); Ridl. Fl. Malay Pen. **1**: 733. 1922, Jour. Bot. **68**: 15. 1930; Craib, Fl. Siam. Enum. **1**: 655. 1931.

Dutch Borneo, Bandjermasin, *Motley 654;* Pleihari, *Dachlan* (*Boschproefstation 2035*); Asem-Asem, *Dachlan 25b;* Sampit, *Ramlie 3* (*Boschproefstation bb: 13941*).

Found also in Burma, Siam, and Malaya.

This species is closely allied to *Syzygium palembanicum* Miq. but differs in the yellowish branchlets, the larger flowers with angled calyces and the more glandular lower surface of the leaves.

58. **Syzygium Houttuynii** sp. nov.

Arbor glabra, 7–9 m. alta; ramulis compressis vel obtuse angulatis, fusco-luteis, 2–5 mm. diametro; foliis obovato-ellipticis vel ellipticis, basi cuneatis, apice obtusis vel obtuse breviterque acuminatis, 4–9 cm. longis, 2.5–5.5 cm. latis, subtus glandulis crebris nigris minutisque maculatis, costa supra impressa, subtus prominula, venis primariis 6–9, supra perspicuis, subtus elevatis, in venam intramarginalem 2–4 mm. a margine distantem confluentibus, venulis manifestis, laxe reticulatis; petiolo atro-brunneo, ± 7 mm. longo; inflorescentiis terminalibus axillaribusque, ± 5 cm. longis, rachi compresso-angulata, ramis brevibus, paucis; alabastris sessilibus, 1.5–1.8 cm. longis, apice ± 1 cm. latis; calycis tubo turbinato, ± 13 mm. longo, lobis ± rotundatis, deciduis; staminibus circiter 1 cm. longis, antheris late ellipticis, disco staminifero margine interno prominulo; stylo longo.

British North Borneo, Mount Kinabalu, Marai Parai, *Clemens 32372* (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York and Rijks Herb.), at about 2700 m. alt., May 26, 1933; Paka Cave to Lobang, *Clemens 10738*.

*Syzygium Houttuynii* shows some resemblance to *S. ampullarium* (Stapf) in the prominent venation of the leaves, but the branchlets are not nearly so leafy, the base of the leaves is very definitely cuneate rather than rounded, and the inflorescence is open. This species is dedicated to Martiuus Houttuyn, author of the "Natuurlike historie" (1761–85).

59. **Syzygium Foxworthianum** (Ridl.) comb. nov.

*Eugenia Foxworthiana* Ridl. Fl. Malay Pen. **5**: 308. 1925; Craib, Fl. Siam. Enum. **1**: 642. 1931; Fischer, Kew. Bull. **1932**: 180 (as *Foxworthyana*). 1932.

*Eugenia Foxworthyi* Ridl. op. cit. **1**: 728. 1922, non Elmer (1912).

*Eugenia densiflora* Duth. var. *angustifolia* Ridl. op. cit. **1**: 729. 1922.

British North Borneo, Kinabatangan, *Evangelista 1122;* Pin River, *Arsat 1346:* Sarawak, banks of Ramo south of Sarawak, *Beccari 2838;* Upper Rejang River, Gat, *Clemens 21626, 21627;* Kapit, *Clemens 21199, 21201;* Mount Sudan, *Native collector 2082;* Upper Baram, Mount Murud, *Native Collector 2845;* Baram District, Mount Skiwa, *Hose 445:* Dutch Borneo, Western Koetai, near Moeara Wahau, *Endert 2392;* near Long Poehoes, *Endert 2396, 5027;* Menjok, *Witkamp 15* in part; Sintang, *Teysmann 8222;* Kapoeas, *Teysmann 8231;* Soengei Landak, *Teysmann s. n.*

Found also in Siam and the Malay Peninsula.

*Syzygium Foxworthianum* (Ridl.) is closely allied to *S. pycnanthum* Merr. & Perry although it is fairly easy to distinguish by the smaller flowers, and the leaves tapering at the base and lacking the secondary submarginal vein so characteristic of the latter species. We have no type-material (described from the Malay Peninsula) of this species nor of *E. densiflora* var. *angustifolia* Ridl. but a collection of the latter from the Malay Peninsula in our herbarium is not separable so far as we can see from the Bornean material which we interpret to represent *S. Foxworthianum* (Ridl.). The species very closely resembles *E. axillaris* Koord. & Val. but the secondary venation in that species is less obvious than in the Bornean material and the inflorescences are both axillary and terminal.

60. **Syzygium pycnanthum** nom. nov.

*Myrtus densiflora* Blume Bijdr. 1087. 1826.

*Jambosa densiflora* DC. Prodr. **3**: 287. 1828; Korth. Nederl. Kruidk. Arch. **1**: 200. 1847; Blume, Mus. Bot. Ludg.-Bat. **1**: 93. 1849; Miq. Fl. Ind. Bat. **1** (1): 416. 1855.

*Eugenia densiflora* Blume ex DC. Prodr. **3**: 287. 1828, in syn.; Miq. Anal. Bot. Ind. **1**: 17. 1850; Duthie in Hook. f. Fl. Brit. Ind. **2**: 473. 1878; Koord. & Val. Meded. Lands Plant. **40**: 57. 1900 (Bijdr. Boomsoort. Java, **6**: 57); King, Jour. As. Soc. Bengal, **70** (2): 84. 1901 (Mater. Fl. Malay. Pen. **3**: 514);

Koord. & Val. Atlas Baumart. Java, **3**:*f. 446.* 1914; Merr. Jour. Str. Branch Roy. As. Soc. **77**: 225. 1917, **79**: 21. 1918, Enum. Born. Pl. 427. 1921; Ridl. Fl. Malay Pen. **1**: 728. 1922; Craib, Fl. Siam. Enum. **1**: 638. 1931; Merr. Contrib. Arnold Arb. **8**: 112. 1934, Mitteil. Inst. Bot. Hamburg, **7**: 269. 1937, non *Syzygium densiflorum* Wight & Arn. (1834).

British North Borneo, Mount Kinabalu, Tenompok, *Clemens 26747;* Penibukan, *Clemens 50347;* Masilau River, near lower Lobang, *Clemens 51496:* Dutch Borneo, Martapoera, Goenoeng Batong, *Dachlan 114 (Boschproefstation bb: 2173)*; Kapoeas, *Teysmann 8061;* Doesson, *Korthals s. n.;* between Kumam and Salinahu, *Winkler 2951.*

Distribution: Siam, the Malay Peninsula, Sumatra, and Java.

The specific name *densiflorum* is pre-empted in *Syzygium.*

61. **Syzygium glanduligerum** (Ridl.) comb. nov.

*Eugenia glanduligera* Ridl. Jour. Bot. **68**: 14. 1930.

Sarawak, without definite locality, *Native collector 259, 1454, 1456, 1995;* near Kuching, *Haviland 2471/1977* (type, Kew Herb.): Dutch Borneo, without definite locality, *Jaheri s. n.*

Known only from Borneo.

Possibly *Native collector 2578*, Retuh, Sadong, Sarawak, also belongs in this species, but the leaves are more acuminate and lack the characteristic glands on the lower surface. After drying the venation is prominent on the upper surface. The dried leaves of *S. glanduligerum* (Ridl.) are distinctive by their light reddish and somewhat reticulate surfaces.

62. **Syzygium Macromyrtus** (Koord. & Val.) comb. nov.

*Eugenia Macromyrtus* Koord. & Val. Meded. Lands Plant. **40**: 109. 1900 (Bijdr. Boomsoort. Java, **6**: 109), Atlas Baumart. Java, **3**:*f. 482.* 1915.

*Macromyrtus javanica* Miq. Fl. Ind. Bat. **1** (1): 440. 1855.

*Eugenia siphonantha* King ex Greves, Jour. Bot. **62**, Suppl.: 38. 1924.

Dutch Borneo, Pontianak, Danau Lamadgian, *Beccari 3456;* Semitau, *Boschproefstation bb: 17073;* Soengei Rikai, *Hallier 1305;* Soengei Kenaba, *Hallier 1328;* Soengei Kanara, *Hallier 1344;* Poeloe Madjang, *Jaheri s. n., Teysmann 7889, Jorog 363/WB (Boschproefstation bb: 7667).*

Found also in Sumatra and Java.

Since we have not seen the original material of Miquel's species, we are accepting, as authentic, collections named at Buitenzorg. Koorders & Valeton indicated that they had access to the type when they transferred *Macromyrtus javanica* Miq. to *Eugenia.*

The specimens above cited correspond reasonably well with *Forbes 3207*, Sumatra, the type-collection of *Eugenia siphonantha* King ex Greves. In the Bornean material the network of the secondary venation is a little less prominent and in part of the collections the flowers are a little shorter than those of the Sumatran collection; these differences, however, are scarcely significant.

63. **Syzygium paraiense** sp. nov.

Glabra; ramulis ultimis teretibus, gracilibus, circiter ± 1 mm. diametro; foliis ellipticis, subaequaliter utrinque angustatis, basi acuminatis, apice obtuse acuminatis, acumine ± 1 cm. longo, coriaceis, copiose pellucido-punctatis, supra atroviridibus, subtus pallidioribus, crebre nigropunctatis, costa supra impressa subtus elevata, venis primariis prominulis inter se 3–6 mm. inaequaliter distantibus, a margine 1–2 mm. anastomosantibus, venulis prominulis laxe reticulatis; petiolo canaliculato, 5–8 mm. longo; floribus 1–3, pedicellatis, pedicellis ad 2.2 cm. longis; calycis tubo basi attenuato, 13–15 mm. longo, apice vix 5 mm. lato, lobis minute pustulatis, late rotundatis, inaequalibus, exterioribus 2 mm. longis, interioribus 4 mm. longis, petalis crebre minuteque pustulatis, singillatim deciduis.

British North Borneo, Mount Kinabalu, Marai Parai, *Clemens 32277*, March 23, 1933, at about 1500 m. alt. (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York and Rijks Herb.), *33070.*

The habit of this species suggests *Eugenia Blumeana* O. Ktze. (*E. Clavimyrtus* Koord. & Val.); it differs greatly, however, in the leaf-venation which is most like that of *E. Burkilliana* King in that the secondary veins and reticulations are almost as prominent as the primary ones, all being slightly raised on both surfaces of the leaves. The flowers are mostly past anthesis, the calyx-lobes in a number of them having already fallen.

64. **Syzygium paucipunctatum** (Koord. & Val.) comb. nov.

*Eugenia paucipunctata* Koord. & Val. Meded. Lands Plant. **40**: 100. 1900 (Bijdr. Boomsoort.

Java, **6**: 100), Atlas Baumart. Java, **3**: *f. 477.* 1915.

British North Borneo, Marotai, *Mail* (*B. N. B. For. Dept. 2873*): Dutch Borneo, Soengei Lalang, *Delmaar 14b;* Hayoep, *Winkler 2255;* Pematang, Tjendana, *Rameli 4* (*ZOB. 2461*).

Originally described from Java.

A species rather easily distinguished by sharply 4-angled and narrowly margined branchlets, very short-petiolate or almost sessile subcordate leaves and rather ample inflorescences.

65. **Syzygium aqueum** (Burm. f.) Alston, Ann. Roy. Bot. Gard. Peradeniya, **11**: 204. 1929, Handbk. Fl. Ceyl. **6** (Suppl.): 115. 1931.

*Eugenia aquea* Burm. f. Fl. Ind. 114. 1768; Merr. Herb. Amboin. 393. 1917, Enum. Born. Pl. 425. 1921; Ridl. Jour. Bot. **68**: 11. 1930.

*Myrtus javanica* Blume Bijdr. 1084. 1826 (fide Koord. & Val.).

*Jambosa aquea* DC. Prodr. **3**: 288. 1828; Miq. Fl. Ind. Bat. **1** (1): 421. 1855.

*Malidra aquea* Raf. Sylv. Tellur. 107. 1838.

*Cerocarpus aqueus* Hassk. Flora, **25**: Beibl. **2**: 36. 1842.

*Jambosa javanica* Korth. Nederl. Kruidk. Arch. **1**: 200. 1847.

*Eugenia obversa* Miq. Anal. Bot. Ind. **1**: 18, *t. 1.* 1850; Merr. Enum. Born. Pl. 431. 1921.

*Eugenia mindanaensis* C. B. Rob. Philip. Jour. Sci. Bot. **4**: 363. 1909.

Sarawak, Kuching, *Beccari 1217;* base of Mount Poi, *Clemens 21970:* Dutch Borneo, Doesson, *Korthals s. n.* (type of *E. obversa* Miq., Rijks Herb.).

Widely cultivated in Malaysia.

In August 1930 Merrill examined Korthals' specimen on which Miquel based *Eugenia obversa* and found it apparently a form of *E. aquea* Burm. f. The specimen in the Rijks Herbarium is also marked "videtur Jambosa mappacea Korth."

We have not seen the specimen on which Korthals based his record of *Jambosa javanica* (which he attributed to de Candolle but which apparently is his own combination) from Borneo. However, since it represents a cultivated species, and since Koorders and Valeton, Meded. Lands Plant. **40**: 81. 1900 (Bijdr. Boomsoort. Java, **6**: 81), placed *Myrtus javanica* Blume, non Spreng. (the basis of Korthals' new combination) as a synonym of *Eugenia aquea* Burm. f., we accept their judgment in this reduction.

Our collections compare well with those from the island of Mindanao described as *Eugenia mindanaensis* C. B. Rob. but later, and correctly, reduced by him to *E. aquea* Burm. f. It is to be noted that there is great diversity in the limited amount of Indian material available, and since the Bornean plants do not agree very well with these or with plates and descriptions of the species in India, the usual Indian references are omitted from our synonymy. The species was originally described from Amboina.

The leaves are very much like those of *S. samarangense* (Blume) but the flowers are smaller, each with a long and graceful pseudostipe, and the inflorescence is more strict than spreading.

66. **Syzygium Beccarii** (Ridl.) comb. nov.

*Eugenia Beccarii* Ridl. Jour. Bot. **68**: 12. 1930.

Sarawak, Matang, *Beccari 2583* (Kew Herb.; the actual type number, not *2983* as cited by Ridley); Mount Matang, *Clemens 22296*, October 28, 1929.

Known only from Borneo.

A tree about 10 m. high in the summit-forests.

67. **Syzygium pauciflorum** nom. nov.

*Jambosa linearis* Korth. Nederl. Kruidk. Arch. **1**: 199. 1847; Miq. Fl. Ind. Bat. **1** (1): 426. 1855, excl. syn.; Merr. Enum. Born. Pl. 430. 1921, non *Syzygium lineare* Wall. List, no. 3596. 1831, *nomen;* nec Gamble, Fl. Madras, **1**: 476, 479. 1919.

Dutch Borneo, Goenoeng Pamatton, *Korthals s. n.* (type, Rijks Herb.).

Blume, Mus. Bot. Lugd.-Bat. **1**: 104. 1849, erred in reducing this species to *Eugenia* (*Jambosa*) *laeta* Ham., an Indian species with elliptic-lanceolate leaves and larger flowers. Merrill found two sheets in the Rijks Herbarium, the type above cited and a very similar specimen labeled merely "Moluccas." We have no material which satisfactorily matches this type. Unfortunately Korthals' name is invalid in *Syzygium* on account of the very different *S. lineare* Wall. ex Duthie.

68. **Syzygium rostratum** (Blume) DC. Prodr. **3**: 261. 1828.

*Calyptranthus rostrata* Blume Bijdr. 1092. 1826.

*Jambosa tenuicuspis* Miq. Fl. Ind. Bat. **1** (1): 431. 1855.

*Eugenia tenuicuspis* Koord. & Val. Meded. Lands Plant. **40**: 129. 1900 (Bijdr. Boomsoort. Java, **6**: 129), Altas Baumart. Java, **3**: *f. 494.* 1915.

British North Borneo, Mount Kinabalu, Penataran Basin, *Clemens 32450*, at about 1650 m. alt; Penataran River, *Clemens 34038*, at about 1500 m. alt.; Marai Parai, *Clemens 32992;* Colombon Basin, *Clemens 40073;* Colombon River, *Clemens 32496, 33698, 34478;* Keebambang River, *Clemens 34409;* Tenompok, *Clemens 27902, 28574;* Upper Kinabalu, Penibukan, wall north of Pinokok, *Clemens 40997*, at about 2400 m. alt.

Reported from Sumatra and Java.

The strongest characters of *S. rostratum* (Blume) DC. are the long slender acumen, the rather sharply marked venation of the lower leaf-surface and the shallowly lobed calyx. We have not seen any fruit of this species but Koorders & Valeton describe the seed as oblong in contrast to that of *S. syzygioides* (Miq.) which is described as transversely oblong.

69. **Syzygium syzygioides** (Miq.) Merr. & Perry, Jour. Arnold Arb. 19: 109. 1938.

*Jambosa syzygioides* Miq. Fl. Ind. Bat. **1** (1): 431. 1855.

*Calyptranthus caryophyllifolia* Blume Bijdr. 1089. 1826, non Willd. (1796).

*Syzygium nelitricarpium* Teijsm. & Binnend. Nat. Tijdschr. Ned. Ind. **27**: 53. 1863 (fide Koord. & Val.).

*Eugenia cymosa* sensu Wight, Ill. **2**: 17. 1841, Ic. **2**: *t. 555*. 1843; Kurz, Jour. As. Soc. Bengal, **46** (2): 67. 1877, For. Fl. Brit. Burma, **1**: 486. 1877; Duthie in Hook. f. Fl. Brit. Ind. **2**: 482. 1878; Koord. & Val. Meded. Lands Plant. **40**: 126. 1900 (Bijdr. Boomsoort. Java, **6**: 126); King, Jour. As. Soc. Bengal, **70** (2): 100. 1901 (Mater. Fl. Malay. Pen. **3**: 530); Merr. Jour. Str. Branch Roy. As. Soc. **77**: 225. 1917; Gagnep. in Lecomte, Fl. Gén. Indo-Chine, **2**: 823. 1920; Merr. Enum. Born. Pl. 427. 1921; Ridl. Fl. Malay Pen. **1**: 737. 1922; Craib, Fl. Siam. Enum. **1**: 637. 1931, non Lam. (1789).

Sarawak, without definite locality, *Native collector 2602:* Dutch Borneo, near Long Poehoes, *Endert 4921*.

Distribution: Burma, Siam, Indo-China, Malay Peninsula, Banka, and Java.

Both Gagnepain and Craib are in agreement that the collections generally accepted as *Eugenia cymosa* Lam. do not represent that species. Since we have material in our Borneo collections which apparently belongs with the rest of the material passing as *E. cymosa* Lam., we have tried to determine the identity of *Eugenia cymosa* Lam. Through the courtesy of Professor Humbert, Museum d'Histoire Naturelle de Paris, we have obtained a photograph of the original of Lamarck's species. There are three fragments on the sheet, a branch bearing four leaves and a terminal fruit, a branch with two inflorescences, and a separate inflorescence. According to the scale at the side of the photograph the flower-buds are ± 12 mm. long and ± 6 mm. in diameter at the apex. The closely veined leaves are lanceolate with a rounded base and an acuminate apex, 8–10 cm. long, 2–2.5 cm. broad; the fruit (as far as we can judge) is oblong, 2.8 cm. by 2.4 cm. We have no specimens which match this type. We are inclined to believe that Baker, Fl. Maur. Seych. 117. 1877, was right in treating it as a native of Mauritius, although Lamarck supposed it to have been introduced from the Moluccas. Of the list of synonyms usually given under *Eugenia cymosa* Lam., *Syzygium cymosum* DC. Prodr. **3**: 259. 1828, *Eugenia rhodomelea* Commers. ex DC. Prodr. l. c., in syn., and *Eugenia nigrescens* Poir. Suppl. **3**: 123. 1813, are true *E. cymosa* Lam.; the other synonyms are names given at various times to the species of Burma, Indo-China, and Malaysia.

70. **Syzygium Myrtillus** (Stapf) comb. nov.

*Eugenia Myrtillus* Stapf, Trans. Linn. Soc. II. Bot. **4**: 153. 1894; Merr. Jour. Str. Branch Roy. As. Soc. **79**: 21. 1918, Enum. Born. Pl. 431. 1921, Enum. Philip. Pl. **3**: 172. 1923.

*Eugenia ugoensis* C. B. Rob. Philip. Jour. Sci. Bot. **4**: 389. 1909; Merr. Jour. Str. Branch Roy. As. Soc. **77**: 226. 1917, Enum. Born. Pl. 434. 1921.

*Eugenia subcaudata* Merr. Philip. Jour. Sci. Bot. **11**: 21. 1916.

British North Borneo, Mount Kinabalu, *Haviland 1109;* Marai Parai Spur, *Clemens 10973;* Marai Parai, *Clemens 32340, 32386, 33117*, at about 1900, 2800 and 2100 m. alt. respectively; head of Colombon River, *Clemens s. n.*, July 11, 1933, mossy forest ridge at 2400–2700 m. alt.; Silau Basin, *Clemens 29733;* between Kamburanga and Paka, *Clemens 28943, 29917;* Upper Kinabalu, *Clemens 29095, 29733, 29917, 30244*.

Known also from the Philippines.

A species perhaps best characterized by its smallish and closely veined obovate or oblong-oblanceolate leaves. The inflorescence is axillary and terminal, and, although the flowers are small, the calyx is definitely lobed.

71. **Syzygium myrtilloides** sp. nov.

Arbor parva vel frutex; ramulis compressis, ± sulcatis, subbrunneis; foliis coriaceis, ellipticis, pellucido-punctatis, basi rotundato-cuneatis, 4.5–8 cm. longis, 2–4.5 cm. latis, apice obtuse acuminatis, acumine 7–10 mm. longo, supra olivaceo-brunneis subtus pallidioribus; costa supra impressa, subtus prominente, venis venulisque crebris, obscure reticulatis, ex oblique patulis subtransversis; petiolo 5–7 mm. longo; inflorescentiis terminalibus vel ex axillis foliorum superiorum, ± 5 cm. longis, ramosis, ramis divaricatis, 4-angulatis, vulgo 1–3-floris; floribus plerumque sessilibus; alabastris 5–6 mm. longis, elongato-conicis; calycis tubo ± 4 mm. longo, lobis 1 mm. longis; petalis singillatim deciduis; fructibus subglobosis, ± 1.5 cm. diametro.

British North Borneo, Mount Kinabalu, Penibukan, *Clemens 30958* (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York and Rijks Herb.), January 10, 1933, at about 1200–1500 m. alt.; ridge above Pina Taki River, *Clemens 31063;* Marai Parai, *Clemens 10974, 33057. Clemens 40644,* Penibukan, probably also belongs to this species. It is a very young shoot both as to leaves and as to flowers.

This species is very closely related to *S. Myrtillus* (Stapf), but the leaves are larger (averaging 5.5–6 cm. long), rounded-cuneate at the base, only slightly reticulate, and not crowded on the branchlets. In contrast those of *S. Myrtillus* (Stapf) are smaller (av. 3 cm.), cuneate-attenuate at the base, with fairly sharp reticulations, and crowded on the branchlets; the flowers too are smaller. These may be only differences brought about by the effect of higher and lower altitudes; but, the plants are so different in appearance that without further evidence it seems preferable to maintain them as two distinct entities.

72. **Syzygium lineatum** (DC.) Merr. & Perry, Jour. Arnold Arb. **19**: 109. 1938.

*Myrtus lineata* Blume Bijdr. 1087. 1826, non Sw.
*Jambosa lineata* DC. Prodr. **3**: 287. 1828; Miq. Fl. Ind. Bat. **1** (1): 428. 1855; Merr. Philip. Bur. For. Bull. **1**: 43. 1903.
*Eugenia corymbosa* Wall. List, no. 3566F. 1831 (fide Duthie), *nomen.*
*Syzygium longiflorum* Presl, Bot. Bemerk. 70. 1844; Walp. Ann. **1**: 314. 1848–49.
*Clavimyrtus lineata* Blume, Mus. Bot. Lugd.-Bat. **1**: 116. 1849.
*Clavimyrtus latifolia* Blume, op. cit. 117; Walp. Ann. **2**: 640. 1851–52.
*Jambosa latifolia* Miq. Fl. Ind. Bat. **1** (1): 429. 1855.
*Jambosa Teysmanni* Miq. l. c.
*Jambosa rubricaulis* Miq. op. cit. 432.
*Eugenia lineata* Duthie in Hook. f. Fl. Brit. Ind. **2**: 487. 1878; F.-Vill. Novis App. 85. 1880; Koord. & Val. Meded. Lands Plant. **40**: 114. 1900 (Bijdr. Boomsoort. Java, **6**: 114); King, Jour. As. Soc. Bengal, **70** (2): 99. 1901 (Mater. Fl. Malay. Pen. **3**: 529); Merr. Jour. Str. Branch Roy. As. Soc. **77**: 226. 1917, **79**: 20. 1918, Enum. Born. Pl. 430. 1921; Ridl. Fl. Malay Pen. **1**: 738. 1922; Merr. Univ. Calif. Pub. Bot. **15**: 216. 1929, Mitteil. Inst. Allg. Bot. Hamburg, **7**: 269. 1937, non DC. (1828).
*Eugenia longiflora* F.-Vill. Novis. App. Fl. Filip. 86. 1880; C. B. Rob. Philip. Jour. Sci. Bot. **4**: 366. 1909; Elmer, Leafl. Philip. Bot. **4**: 1440. 1912, **7**: 2346. 1914; Gagnep. in Lecomte, Fl. Gén. Indo-Chine, **2**: 822. 1920, pro parte; Ridl. Jour. Bot. **68**: 14. 1930; Craib, Fl. Siam. Enum. **1**: 650. 1931.
*Eugenia Teysmanni* Koord. & Val. Meded. Lands Plant. **40**: 164. 1900 (Bijdr. Boomsoort. Java, **6**: 164).
*Eugenia marivelesensis* Merr. Philip. Jour. Sci. **1**: Suppl. 106. 1906.
*Eugenia Miquelii* Elmer, Leafl. Philip. Bot. **4**: 1441. 1912.
*Eugenia longicalyx* Ridl. Jour. Bot. **68**: 11. 1930.

British North Borneo, without definite locality, *Wood 1826, Creagh s. n.* (type of *E. longicalyx,* Herb. Kew); Balambangan Island, *Kloss 19290;* Mount Kinabalu, Kalawat Hills, *Clemens 27524;* Sandakan, along the banks of the Sapilok Besar River, *Puasa (B. N. B. For. Dept. 1861);* Soengei Damit, *Hassan 742:* Sarawak, without definite locality, *Native collector 263, 442, 470;* near Kuching, *Haviland 84/120, 2927, Hewitt s. n.;* Penkuoon Ampat, *Haviland 99/121;* Retuh, Sadong, *Native collector 2571:* Dutch Borneo, without definite locality, *Jaheri s. n., Rachmat s. n., Korthals s. n.;* Soengei Unpanang, Pontianak, *Beccari 3435;* Marop, *Beccari 3489;* Western Koetai, near Moeara Moentai, *Endert 1997;* Samarinda, *Posthumus 2133;* near Long Djerieau, *Endert 5086;* Soengei Kenara, *Hallier 1386;* Soengei Sambas, *Hallier 1127;* at the base of Goenoeng Kenepai, *Hallier 1526;* Sangouw, *Hallier 888;* Kapoeas, *Teysmann 8225;* Soengei Landak, *Teysmann s. n., 11251;* Sintang, *Teysmann 8221.*

Indo-China, Siam, and Malaysia.

Although as a whole the flowers of the Phillipine material of *S. longiflorum* Presl are a little coarser than those of *E. lineata* Duthie, nevertheless, there are specimens in our assembled herbarium material both from Borneo and from the Malayan region which have flowers intermediate between the two extremes and, hence, we take them to be variations in a single species. At present we see no reason for maintaining *E. Teysmanni* (Miq.) Koord. & Val. and *E. longicalyx* Ridl. as separate entities. *E. longicalyx* Ridl. compares favorably with fruiting collections from the Malay Peninsula named *Jambosa rubricaulis* Miq. which long since, and we believe rightly so, has been reduced to synonymy under *Eugenia lineata* Duthie.

73. **Syzygium caryophylliflorum** (Ridl.) comb. nov.

*Eugenia caryophylliflora* Ridl. Jour. Bot. **68**: 15. 1930.

British North Borneo, without definite locality, *Creagh s. n.* (type, Herb. Kew; isotype, New York Bot. Gard.).

Not yet reported from elsewhere.

We do not have any specimens to match this type. In both foliar and floral characters *S. caryophylliflorum* (Ridl.) is almost too much like *S. lineatum* (DC.) Merr. & Perry. It differs in that the long peduncled inflorescence much exceeds the leaves, the flowers are pedicellate and the leaves perhaps are more abruptly and shortly acuminate. Ridley says the plant is not at all glandular; but in the duplicate of the type-collection in the herbarium of the New York Botanic Garden the younger leaves are pellucid-punctate.

74. **Syzygium chloranthum** (Duthie) comb. nov.

*Eugenia chlorantha* Duthie in Hook. f. Fl. Brit. Ind. **2**: 487. 1878; King, Jour. As. Soc. Bengal, **70** (2): 97. 1901 (Mater. Fl. Malay. Pen. **3**: 527); Ridl. Fl. Malay Pen. **1**: 734. 1922; Craib, Fl. Siam. Enum. **1**: 634. 1931.

Sarawak, without definite locality, *Native collector 2436;* near Kuching, *Hewitt s. n., Haviland & Hose 2924, 2926.*

Possibly *Clemens 26490*, Dallas, British North Borneo, also belongs here, but its inflorescences are very immature.

The species has been reported from the Malay Peninsula, Sumatra, and Borneo. Owing to a specimen credited to this species by Gagnepain in Fl. Gén. Indo-Chine, **2**: 806, Craib particularly pointed out that he had seen no specimens from Siam which he could refer to this species.

King described the fruit of *S. chloranthum* as smooth; the only fruiting specimen we have available is *King's collector 4220* showing immature fruits which have dried slightly rugulose; the cotyledons have interlocking faces.

75. **Syzygium monticola** sp. nov.

Arbor glabra; ramulis teretibus, gracilibus, brunneis; foliis ovato-ellipticis, 7–14 cm. longis, 3.5–6 cm. latis, basi abrupte cuneatis vel acutis, apice acuminatis, acumine ad 1.5 cm. longo, pergamenaceis, supra creberrime puncticulatis, subtus conferte glandulosis, haud pellucidis, costa supra canaliculata, subtus prominula, venis venulisque crebris, oblique patulis, tenuibus, vix reticulatis, vena intramarginali ± 1 mm. a margine distanti; petiolo ± 5 mm. longo; inflorescentiis terminalibus axillaribusque, 2.5–5 cm. longis; alabastris 5–6 mm. longis, sessilibus; calycis tubo leviter sulcato vel angulato, lobis circiter 1 mm. longis; petalis singillatim deciduis; fructibus subglobosis, ± 1 cm. diametro, calycis lobis coronatis.

Dutch Borneo, Soengei Kenepai, *Hallier 1912, 2087* (type, Herb. Buitenzorg), *2118*, 1893–94; Kapoeas, *Teysmann 8062;* Western Koetai, near Kemoel, *Endert 4299;* Long Petak, *Endert 4707*, at ± 450 m. alt.

In general appearance this species suggests *S. chloranthum* (Duthie), but the leaves are thinner, the base of the flower is more slender, the fruit shows no tendency to be rugulose, and the inner faces of the cotyledons are concave.

76. **Syzygium Lamii** sp. nov.

Glabra; ramulis teretibus vel compresso-sulcatis, brunneis, ± 3 mm. diametro; foliis ovato-ellipticis vel ellipticis, 7–14 cm. longis, 3–6 cm. latis, basi rotundato-cuneatis, apice ± acuminatis, haud pellucidis, undique nigro-puncticulatis, supra olivaceo-brunneis, subtus brunneis, costa supra canaliculata, subtus elevata, venis venulisque tenuibus, oblique patulis, in utraque pagina manifestis, reticulatis, vena intramarginali ± 1 mm. a margine distanti; petiolo 9–13 mm. longo; inflorescentiis terminalibus axillaribusque ad 8 cm. longis, saepe e basi ramosis; alabastris sessilibus, 8–9 mm. longis, subclavatis; calycis tubo 5–6 mm. longo, lobis exterioribus 1–1.5 mm. longis, circiter 2.5 mm. latis, subrotundatis, interioribus majoribus.

Dutch Borneo, Boentok, Sei Malian, *Obi 10* (*ZOB. 2402*, type, Herb. Buitenzorg; isotype, Rijks Herb.).

Perhaps this species is most nearly related to *S.*

*chloranthum* (Duthie). It differs in that the leaves are a little firmer in texture, the inflorescence is longer and more open, and the flower-buds taper gradually from apex to base, the base not being so noticeably sulcate as in the related species.

77. **Syzygium urceolatum** (Korth.) comb. nov.

*Jambosa urceolata* Korth. Nederl. Kruidk. Arch. **1**: 202. 1847, non *Eugenia urceolata* sensu King, Jour. As. Soc. Bengal, **70** (2): 101. 1901 (Mater. Fl. Malay. Pen. **3**: 531).

Dutch Borneo, Martapoera, *Korthals s. n.* (type, Rijks Herb.); Hayoep, *Winkler 2462;* Soengei Kenepai, *Hallier 2085.*

Distribution: Malay Peninsula, and (fide Miquel) Sumatra.

Possibly *Villamil 9*, a sterile specimen, from Sandakan, British North Borneo, belongs here. The species is not an easy one to interpret as we do not have flowering material which we can say surely is an exact match. *Hallier 2085* is a fragmentary specimen with the inflorescence (by no means intact) in a packet, a branchlet and three leaves mounted on the sheet. Both the leaves (except that they have dried a lighter brown) and the bark of the branchlet agree fairly well with those of the type; the flowers are about the size of those of *S. pontianakense* Merr. & Perry which is a close species, as we see it, differing in its smaller leaves and the smooth fruits. *Winkler 2462* has a smaller leaf (up to 16 cm. long) than the type, minutely puncticulate on the upper surface. The fruit is sessile, urceolate, and marked with fine shallow ridges.

An unnamed specimen in our herbarium, Pahang, Taku, Gunong Tahan, *Haniff & Nur 8088*, appears to be a good match for the Bornean material. *S. urceolatum* (Korth.) closely resembles *E. Hemsleyana* King, but the corrugations of the fruit are more sharply marked in the latter species. In both, as at present represented in the herbarium, the fruits are immature.

78. **Syzygium tawahense** (Korth.) comb. nov.

*Jambosa tawahensis* Korth. Nederl. Kruidk. Arch. **1**: 202. 1847; Blume, Mus. Bot. Lugd.-Bat. **1**: 106. 1849; Walp. Ann. **2**: 636. 1851–52; Miq. Anal. Bot. Ind. **1**: 28. 1850, Fl. Ind. Bat. **1** (1): 418. 1855; Merr. Enum. Born. Pl. 434. 1921.

*Eugenia sp.* Merr. Univ. Calif. Pub. Bot. **15**: 221. 1929.

British North Borneo, Tawao, *Elmer 21329:* Sarawak, without definite locality, *Native collector 257;* Rejang, Sibu, *Haviland 2920:* Dutch Borneo, without definite locality, *de Vriese 8058a, Korthals s. n.* (type of *Jambosa tawahensis*, Rijks Herb.); Soengei Landak, *Teysmann s. n., 11242;* Kapoeas, Sama, *de Vriese & Teysmann s. n.;* Soengei Sambas, *Hallier 1177;* Mampawa, *Teysmann 7931;* Pontianak, *Teysmann s. n.*

Known only from Borneo.

The type is a flowering specimen showing both axillary and terminal inflorescences, flowers just ready to open, buds ± 11 mm. long, thick-clavate with rugulose base, in some specimens densely clustered at the apices of short branches. The subglobose fruit is best shown in *Hallier 1177;* here it is 3.5 cm. in diameter (whether mature or not we cannot say) and is covered with roughish ridges running from the apex to the base, 3–5 mm. apart on the horizontal diameter and projecting 1–2 mm. The leaves, as in a few perhaps nearly related species, sometimes show the secondary venation more readily from the upper surface than from the lower, hence, it is often difficult to say definitely whether the venation is open or close.

79. **Syzygium Griffithii** (Duthie) comb. nov.

*Eugenia Griffithii* Duthie in Hook. f. Fl. Brit. Ind. **2**: 481. 1878; King, Jour. As. Soc. Bengal, **70** (2): 92. 1901 (Mater. Fl. Malay. Pen. **3**: 522); Ridl. Fl. Malay Pen. **1**: 731. 1922; Merr. Univ. Calif. Pub. Bot. **15**: 219. 1929.

British North Borneo, near Sandakan, *Elmer 20082.*

Originally described from the Malay Peninsula.

We are somewhat uncertain as to the limits of this species but at present this fruiting collection seems better placed here than elsewhere.

80. **Syzygium leucophloium** nom. nov.

*Jambosa cuneata* Blume Mus. Bot. Lugd.-Bat. **1**: 105. 1849; Miq. Fl. Ind. Bat. **1** (1): 423. 1855, non *Syzygium cuneatum* Wall.

Dutch Borneo, without definite locality, *Korthals s. n.* (type of *Jambosa cuneata* Blume, Rijks Herb.).

Known only from the type-collection.

We have not seen any material which matches this type. Although in general aspect it closely resembles *S. albidirameum* (Merr.) we do not believe that the two are identical. Unfortunately our specimens for comparison are not in the same stage of development, one being in flower and the other in fruit. It does not seem likely, however, that the large flowers (with obvious calyx-lobes) of *S. leucophloium* would produce

fruits as small as the more immature ones of *S. albidirameum* (Merr.) which also are crowned by a very shallow and comparatively narrow calyx-limb.

81. **Syzygium kuchingense** (Merr.) comb. nov.

*Eugenia kuchingensis* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 213. 1917, **79**: 20. 1918, Enum. Born. Pl. 429. 1921.

Sarawak, Kuching and vicinity, *Native collector 258* (type, Herb. Manila), *1625, 1882, 2182;* Mount Matang, *Native collector 5088.*

Known only from Borneo.

Although Ridley, Jour. Bot. **68**: 14. 1930, suggests that this is the same plant as *Eugenia corymbifera* Koord. & Val., it is not at all comparable with the authentic material of that species which we have at hand. It is perhaps most closely related to *S. palembanicum* Miq. but the primary veins are less obvious, more remote and more nearly approaching subtransverse, the secondary are obscure and the lower surface of the dried leaves is a very dark reddish brown. The leaves are scarcely to be distinguished from those of *S. Endertii* Merr. & Perry, but the flowers of the latter are much larger.

82. **Syzygium palembanicum** Miq. Fl. Ind. Bat. Suppl. **1**: 313. 1862.

*Eugenia lepidocarpa* Wall. List, no. 3618 in part (fide Kurz), 1831, *nomen;* Kurz, Jour. As. Soc. Bengal, **46** (2): 68. 1877; Duthie in Hook. f. Fl. Brit. Ind. **2**: 476. 1878; King, Jour. As. Soc. Bengal, **70** (2): 89. 1901 (Mater. Fl. Malay. Pen. **3**: 519); Ridl. Fl. Malay Pen. **1**: 730. 1922, Jour. Bot. **68**: 12. 1930, excl. *Beccari 1201.*

*Eugenia grandis*, var. *lepidocarpa* Kurz, For. Fl. Brit. Burma, **1**: 490. 1877.

*Eugenia palembanica* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 225. 1917, Enum. Born. Pl. 432. 1921.

Sarawak, Samatan, *Foxworthy 152;* Kuching, *Beccari 338;* Matang, *Beccari 1946;* Bidi Cave, *Clemens 20626;* Retuh, *Native collector 2551:* Dutch Borneo, *Polak 229.*

Indigenous also in the Malay Peninsula and Sumatra.

Although *Eugenia lepidocarpa* Wall. seems to be the more used name it lacks nomenclatural priority, *Syzygium palembanicum* Miq. having been validly published with a description at least fifteen years earlier than the first actually published description of *Eugenia lepidocarpa* Wall.

83. **Syzygium tenuicaudatum** sp. nov.

Frutex erectus, circiter 3 m. altus, glaber; ramis ramulisque pallidis, teretibus, ramulis interdum leviter compressis, ultimis circiter 2 mm. diametro; foliis subcoriaceis, anguste lanceolatis, olivaceis, nitidis, longissime tenuiterque caudato-acuminatis, basi cuneatis, 15–24 cm. longis, 2.5–4 cm. latis, vix puncticulatis, subtus pallidioribus, acumine ad 4 cm. longo, venis primariis utrinque 17–25, patulis, subtus elevatis, in venam submarginalem rectam perspicuam 2 mm. a margine distantem confluentibus; petiolo 1–1.5 cm. longo; inflorescentiis terminalibus, pedunculatis, paniculatis, haud confertis, circiter 10 cm. longis, ramis inferioribus ad 4 cm. longis; ramulis ultimis vulgo trifloris; floribus haud numerosis, sessilibus, rarius pedicellatis; calycis tubo obovoideo deorsum in stipitem brevem attenuato, apice circiter 4 mm. lato, 8 mm. longo, brunneo, lobis 4, latissime rotundatis, 2 mm. latis; petalis liberis, concavis, imbricatis, 2.5 mm. latis; staminibus numerosissimis, circiter 8 mm. longis.

Sarawak, Upper Rejang River, Gat, *Clemens 21204a, 21634* (type, Herb. New York Bot. Gard.), an epiphytic shrub 8 to 10 feet high, on great tree trunks over the river.

A species strikingly characterized by its very prominently nerved, slender and elongate caudate-acuminate, lanceolate leaves. In leaf-form this rather curiously resembles *Syzygium neriifolium* Becc., but it is totally different in the technical details of the inflorescence.

84. **Syzygium leptostachyum** (Blume) comb. nov.

*Jambosa leptostachya* Blume, Mus. Bot. Lugd.-Bat. **1**: 99. 1849.

*Strongylocalyx leptostachya* Blume ex Miq. Fl. Ind. Bat. **1** (1): 443. 1855, in syn.

Borneo, without definite locality, *G. M(ueller) s. n.* (Rijks Herb.).

Known only from the type-collection.

From an examination of the actual types of *Jambosa leptostemon* Korth. and *Jambosa leptostachya* Blume, it is to be noted that Miquel erred in his reduction of the latter to the former, Fl. Ind. Bat. **1** (1): 443. 1855, which Merrill followed, Enum. Born. Pl. 429. 1921. Two distinct species are represented with two features in common: the primary veins in both are prominent on the lower surface, and both have the subglobose calyx with a short stipitate base which was the main feature of Blume's genus *Strongylocalyx;* nevertheless, the flowers of *S. leptostachyum* (Blume) in unopened

bud are twice as large as those of *S. leptostemon* (Korth), and the leaves of the former are sharply reticulate whereas those of the latter show scarcely any reticulations.

85. **Syzygium fusiforme** (Duthie) comb. nov.

*Eugenia fusiformis* Duthie in Hook. f. Fl. Brit. Ind. **2**: 479. 1878, King, Jour. As. Soc. Bengal, **70** (2): 132. 1901 (Mater. Fl. Malay. Pen. **3**: 562); Ridl. Fl. Malay Pen. **1**: 727. 1922, Jour. Bot. **68**: 11. 1930.

British North Borneo, Sipit Magai, *Mail* (*B. N. B. For. Dept. 1955*): Sarawak, Matang, *Beccari 2236:* Dutch Borneo, Djanah Bomboeëng, Boentok, *Dachlan 91* (*ZOB. 2405*); without definite locality, *Barber 101.*

Distribution: Malay Peninsula.

The Bornean collections quite certainly match the Malay Peninsula material of this species.

86. **Syzygium Hallieri** sp. nov.

Glabra; ramulis ultimis quadrangulis, ferrugineis, circiter 2–3 mm. diametro, cortice subinde rimoso; foliis ellipticis, subaequaliter utrinque angustatis, basi acutis vel obtusis, apice acutis vel obtuse lateque acuminatis, 4.5–10 cm. longis, 2–4.5 cm. latis, coriaceis, supra olivaceis vel viridibus, subtus brunneis, puncticulatis, venis primariis manifestis; costa supra impressa, subtus prominente, venis primariis prominulis, 6–10 mm. inter se distantibus, oblique ascendentibus, a margine 3–4 mm. ± arcuato-anastomosantibus, venulis manifestis, laxe reticulatis; petiolo ± 1 cm. longo, subcanaliculato; inflorescentiis terminalibus vel in axillis foliorum superiorum locatis, 3–5 cm. longis, e basi ramosis, rachi ± 2 cm. longa, 2–2.5 mm. crassa, ramulis brevibus; alabastris sessilibus, 1.3–1.5 cm. longis, apice 5 mm. latis, clavatis; calycis lobis exterioribus 2 mm. longis, 3 mm. latis, interioribus paullo majoribus; petalis singillatim deciduis.

Dutch Borneo, at the base of Goenoeng Kenepai, *Hallier 1646* (type, Herb. Buitenzorg), 1894–94.

A species closely allied to *Syzygium fusiforme* (Duthie) but readily separated by the reddish-brown branchlets, the obvious reticulate venation of the leaves, the stouter branches of the inflorescence and the flowers less attenuate at the base.

87. **Syzygium durifolium** sp. nov.

Arbor glabra; ramis ramulisque fuscis, teretibus, rimulosis, ultimis circiter 3 mm. diametro; foliis coriaceis, anguste ellipticis vel lanceolato-ellipticis, 9–12 cm. longis, 3–7 cm. latis, basi rotundatis vel obtusissimis, apice obtusis, olivaceo-viridibus, supra nitidis, subtus opacis, obscure pellucido-punctatis, venis primariis ± 20 utrinque, paullo elevatis, in venam intramarginalem interdum duplicem 2–3 mm. a margine distantem confluentibus, venulis paullo elevatis, laxe reticulatis, margine revoluto; petiolo ± 1.5 cm. longo, ruguloso; inflorescentiis axillaribus, rachi (3 cm. longo) ramulisque 4-angulatis, brunneis, subinde rimulosis, pedunculo communi 1.5 cm. longo; ramis oppositis, patulis, ± 2 cm. longis; alabastris pyriformibus, 11–12 mm. longis, apice 5–6 mm. latis; calycis tubo vix 9 mm. longo, clavato-turbinato, lobis exterioribus 2 mm. longis latisque, interioribus paullo majoribus; petalis singillatim deciduis; disci staminiferi margine interiore bene prominente; antheris oblongis, connectivo ad apicem inconspicue glanduloso-mucronato.

Dutch Borneo, Semitau, *Boschproefstation bb: 17082* (type, Herb. Buitenzorg; isotype, Herb. Arn. Arb.).

Although the raised venation of the leaves strongly suggests *Syzygium subcrenatum* Merr. & Perry, the infructescence of the latter could not possibly correspond to the inflorescence of the former. Perhaps *S. durifolium* most nearly approaches *S. grande* (Wight) Walp.; the flower-buds, however, show a line of constriction just below the sepals, the disc is obtusely 4-angled and elevated within the above staminal ring, and the leaves are smaller and somewhat more rigid.

88. **Syzygium grande** (Wight) Walp. Repert. **2**: 180. 1843; Merr. & Perry, Jour. Arnold Arb. **19**: 112. 1938.

*Eugenia grandis* Wight, Ill. **2**: 17. 1841. Ic. **2**: *t. 614.* 1843; Kurz, Jour. As. Soc. Bengal, **46** (2): 67. 1877, For. Fl. Brit. Burma, **1**: 489. 1877; Duthie in Hook. f. Fl. Brit. Ind. **2**: 475. 1878; King, Jour. As. Soc. Bengal, **70** (2): 91. 1901 (Mater. Fl. Malay. Pen. **3**: 521); Merr. Jour. Str. Branch Roy. As. Soc. **77**: 214. 1917, **79**: 21. 1918, Enum. Born. Pl. 428. 1921; Gagnep. in Lecomte Fl. Gén. Indo-Chine, **2**: 826. 1921; Ridl. Fl. Malay Pen. **1**: 729. 1922; Craib, Fl. Siam. Enum. **1**: 643. 1931.

*Eugenia cymosa* Roxb. Hort. Beng. 37. 1814, *nomen*, Fl. Ind. **2**: 492. 1832, non Lam. (1789).

*Eugenia firma* Wall. List, no. 3603. 1831, *nomen*, non DC. (1828).

*Jambosa firma* Blume, Mus. Bot. Lugd.-Bat. **1**: 108. 1849.

*Jambosa grandis* Blume, l. c.

*Syzygium firmum* Thwaites Enum. Pl. Zeyl. 417. 1864.

Sarawak, Samatan, *Foxworthy 173;* Pulo Satang, *Beccari 2256:* Dutch Borneo, Karrau, *Mueller s. n.* (*Jambosa firma* Blume, Rijks Herb.).

Distribution: Burma, Indo-China, Siam, and the Malay Peninsula.

89. **Syzygium palawanense** (C. B. Rob.) comb. nov.

*Eugenia palawanensis* C. B. Rob. Philip. Jour. Sci. Bot. **4**: 377. 1909; Merr. Jour. Str. Branch Roy. As. Soc. **86**: 336. 1922.

*Eugenia Duthieana* sensu Ridl. Jour. Bot. **68**: 14. 1930, non King.

British North Borneo, Kudat, *Fraser s. n.;* Marotai, *Mail* (*B. N. B. For. Dept. 2874*); Tawao, *Elmer 20832;* Labuk Bay, *Wood 677;* Penibukan, *Clemens 32107;* Upper Kinabalu, Gurulau jungle spur, *Clemens 50522.*

Originally described from Palawan.

This species was previously recorded from Borneo by Merrill, on the basis of *Wood 677.* This is identical with Fraser's specimen referred by Ridley to *Eugenia Duthieana* King. Although the two species are manifestly allied, the Bornean form is distinctly more like the Philippine form than that of the Malay Peninsula. It is much more difficult to distinguish from *S. confertum* (Korth.) but there are several points of difference: in *S. palawanense* (C. B. Rob.) the inflorescence is quite as often axillary as terminal; the inner submarginal vein is outstanding and the primary veins are fairly remote; in *S. confertum* (Korth.) the inflorescence is predominantly terminal and usually profusely branched; the submarginal veins are less marked, the primary veins are closer together and more numerous, and the leaves are less rigid than in *S. palawanense* (C. B. Rob.).

90. **Syzygium confertum** (Korth.) comb. nov.

*Jambosa conferta* Korth. Nederl. Kruidk. Arch. **1**: 202. 1847; Miq. Anal. Bot. Ind. **1**: 28. 1850, Fl. Ind. Bat. **1** (1): 434. 1855; Walp. Ann. **4**: 847. 1857; Merr. Jour. Str. Branch Roy. As. Soc. **79**: 20. 1918, Enum. Born. Pl. 427. 1921.

*Microjambosa conferta* Blume Mus. Bot. Lugd.-Bat. **1**: 118. 1849; Walp. Ann. **2**: 641. 1851–52.

*Eugenia Calvinii* Elm. Leafl. Philip. Bot. **4**: 1419. 1912; Merr. Enum. Philip. Pl. **3**: 161. 1923, Univ. Calif. Pub. Bot. **15**: 216. 1929.

*Eugenia corymbifera* sensu Ridl. Jour. Bot. **68**: 14. 1930 quoad *Beccari 3299*, non Koord. & Val.

British North Borneo, Balambangan Island, *Wood 1732;* Sandakan, *Wood 683;* Tawao, *Elmer 20832, 21026, 21736:* Sarawak, Marop, *Beccari 3299:* Dutch Borneo, Poeloe Lampei, *Korthals s. n.* (type, Rijks Herb.); Western Koetai, near Long Poehoes, *Endert 5007;* Soengei Sakoejang, near Poeloe Laoet, *Dachlan 2316;* Eastern Koetai, near Sangkoelirang, *Abdulhamid 335* (*Boschproefstation bb: 15239*); Balikpapan, Tempadoeng, Beroeangin forest, *Atjil 23* (*Boschproefstation bb: 13915*); Pantailangoe, Saloloeang forest, *Atjil 18* (*Boschproefstation bb: 13910*); Martapoera, Kalaän, *Seriodikarto 12* (*Boschproefstation bb: 12043*); Hayoep, *Winkler 2312;* Asem-Asem, Soengei Najah, *Dachlan 2055;* Soengei Asem, *Labohm 1946;* Soengei Baroe forest, *Rasjid 3* (*Z. O. B. 2436*); Soengei Boeoe, ex *Boschwezen 2092.*

Distribution: Palawan and (fide Miquel) Sumatra.

In the few collections we have of *E. Calvinii* Elm. we see no reason to distinguish it from *S. confertum* (Korth.). The latter is very closely allied to *E. Koordersiana* King which, however, has the primary veins distinctly impressed above and the secondary venation obscure. Since we have at hand only one specimen, King's *collector 6208*, to represent *E. Koordersiana* King, we have no idea of the variation in that species; yet, it may be helpful to point out that the two species here compared appear to agree in the characters of the branchlets, the inflorescence, the shape and the primary venation of the leaves. *S. confertum* (Korth.) appears also to be very closely related to *E. densepunctata* Koord. & Val. which has slightly larger flowers and pellucid-punctate leaves.

Under this species we call particular attention to three specimens: British North Borneo, Balambangan Island, *Wood 1732;* Sandakan, *Wood 683;* without definite locality, *Wood 1295.* In these the apex of the flower-buds shows a median crease which appears to split open and the two halves form two stiffish outer calyx-lobes, the inner are somewhat corolla-like. Possibly these represent a distinct species but it is so like *S. confertum* (Korth.) that we have hesitated to describe it. It is true that the rachis is much stouter in *Wood 1295* and the panicles tend to be single or in threes rather than clustered.

91. **Syzygium elopurae** (Ridl.) comb. nov.

*Eugenia elopurae* Ridl. Jour. Bot. **68**: 15. 1930.

*Eugenia ambongensis* Ridl. op. cit. 16.

British North Borneo, Sandakan, *Creagh s. n.* (type,

Herb. Kew), *Wood 859*, *Foxworthy 596*, *Ramos 1919*, *Clemens 9448;* Ambong Bay, *Creagh s. n.* (type of *E. ambongensis*, Herb. Kew).

Known only from Borneo.

Although there would seem to be a large gap between the oblong-ovate leaves of the type of *E. ambongensis* Ridl. and the lanceolate acuminate one of *E. elopurae* Ridl., it is to be noted that the venation of both is on the same pattern and *Clemens 9448* represents such an intermediate state between the two that it is hard to say to which species it belongs. The rachis and branches of the inflorescence in both are minutely granular near their apices and if the flowers were separated from the specimens they would appear identical. Searching the few collections at our disposal for some tangible character by which to separate them, we find obscure, very minute and remote glands in *E. ambongensis*, which seem to be lacking in *E. elopurae*, this is surely an insecure feature and we are very strongly inclined to believe that the two are phases of a single species.

The fruits of *Clemens 9448* apparently were compressed in drying; in this condition they appear to be very slightly ribbed. The cotyledons appear to be surrounded by ruminate albumen which in cross section looks like a thin layer with narrow tongue-like projections into the cotyledons. This is entirely different from our concept of albumen lacking in the seeds of this group of genera, but until further and more complete collections are available we leave the species in *Syzygium*.

92. **Syzygium pontianakense** sp. nov.

Arbor glabra; ramis ramulisque teretibus, subcinereis, 2.5–3 mm. diametro; foliis coriaceis, ex castaneo-purpureis atro-brunneis, oblongo-ellipticis vel ellipticolanceolatis, vix punticulatis, 12–17 cm. longis, 4.5–7 cm. latis, basi late cuneatis, apice perspicue caudato-acuminatis, acumine 1.5–2 cm. longo, obtuso, costa supra impressa, subtus elevata, venis primariis utrinque circiter 14, supra obscuris, subtus perspicuis, elevatis, rectis vel subincurvis, patulis, 6–12 mm. remotis, in venam intramarginalem conspicuam a margine 5–6 mm. distantem confluentibus, reticulis tenuibus, distinctis neque perspicuis; petiolo circiter 8 mm. longo, canaliculato; inflorescentiis terminalibus axillaribusque, laxe paniculatis, pedunculatis, 7–10 cm. longis, ramis paucis, patulis, paucifloris, inferioribus ad 4 cm. longis; ramulis ultimis vulgo trifloris; floribus breviter pedicellatis (circiter 2 mm.), ebracteolatis vel bracteis caducis praeditis; calycibus cupulatis, circiter 3 mm. diametro, obscure lobatis; petalis liberis, 4, circiter 3 mm. latis; filamentis numerosis, circiter 6 mm. longis; fructibus stipitatis, ventricoso-ellipsoideis, ad 2 cm. longis, 1.2 cm. diametro.

Dutch Borneo, Pontianak, Danau Lamadgian, *Beccari 3470;* Lampai, *Teysmann 7890;* Kapoeas, *Teysmann 8054*, *8057;* without definite locality, *Teysmann* ?, *Rachmat*, Nov. 28, 1923, *cult. Hort. Bog. XI. B. IX. 164* (type, Herb. Buitenzorg).

Known only from Borneo.

*Beccari 3470*, one of the specimens placed by Ridley, Jour. Bot. **68**: 14. 1930, under the Javan *E. corymbifera* Koord. & Val. (*E. condensata* sensu Ridl., *Jambosa condensata* Miq.), and the other collections above cited apparently represent a new species which in foliar characters closely approximates *S. perpuncticulatum* (Merr.), but the leaves are obscurely, if at all, glandular, the base is broadly to rounded-cuneate, the branchlets are grayish-white, not brownish-green, and the flowers taper rather abruptly to a slender pseudostipe; those of *S. perpuncticulatum* (Merr.) have a thickish base.

93. **Syzygium leucocladum** nom. nov.

*Eugenia ambongensis* Ridl. var. *Havilandii* Ridl. Jour. Bot. **68**: 16. 1930.

Sarawak, Belaga, Rejang, *Haviland 2147* (type, Herb. Kew); Upper Rejang River, Kapit, *Clemens 21200;* Gat, *Clemens 21625*.

Reported only from Borneo.

We cannot see any close relationship between this species and *E. ambongensis* Ridl. = *Syzygium elopurae* (Ridl.). Its branchlets are more or less obtusely angled and yellowish; the petioles of the older leaves tend to be thick and perhaps corky, at any rate very similar to the bark of the branchlets; the primary venation of the leaves is conspicuous on the lower surface and distinctly impressed on the upper; the submarginal vein is scarcely more than undulate and about 5 mm. within the margin, and the leaves taper to a cuneate base. In *E. ambongensis* Ridl., on the other hand, the branchlets are terete, the petioles dark and slender, the primary veins fairly obvious but more remote and arcuately anastomosing 5–7 mm. within the margin, and the proximal end of the leaves rounded into a very short obtuse base.

94. **Syzygium phryganodes** sp. nov.

Frutex densus; ramis teretibus, cinereo-brunneis, ramulis ultimis gracilibus, compressis vel sulcatis, brunneis, circiter 1 mm. diametro; foliis oblongis vel obovato-cuneatis, 2.5–4 cm. longis, 1–1.7 cm. latis, basi acuminatis, apice rotundatis vel obtusis vel

subretusis, coriaceis, supra olivaceis, subtus brunneis, haud punctatis, costa supra impressa, subtus prominula, venis primariis utrinque 12–18, supra inconspicuis, subtus manifestis, in venam intramarginalem circiter 0.5 mm. a margine distantem confluentibus, venulis ± obscuris; petiolo gracili, ± 5 mm. longo; paniculis terminalibus axillaribusque, 2–5 cm. longis, ramulis ultimis compressis vel angulatis, saepe 3–5-floris; alabastris circiter 4.5 mm. longis, apice globosis obovatisque, basi stipitatis; calycis tubo circiter 4 mm. longo, apice 2.5 mm. lato, obconico, lobis circiter 1 mm. longis, deciduis; petalis singillatim caducis; fructibus urceolatis, ± 6 mm. diametro.

Dutch Borneo, Western Koetai, Kombeng, *Endert 5262* (type, Herb. Buitenzorg), November 25, 1925, at about 100 m. alt.

Superficially the general habit of this collection suggests *Eugenia cuneata* Duthie; but, the branchlets are not 4-angled, the secondary venation is mostly obscure, the inflorescence may be terminal, axillary or sometimes below the leaves, and the calyx is definitely 4-lobed.

95. **Syzygium brachypodum** sp. nov.

Arbor glabra; ramulis obscure angulatis, pallide brunneis, circiter 3 mm. diametro; foliis ellipticis vel obovato-ellipticis, 7–13 cm. longis, 2.5–5 cm. latis, basi rotundatis, obscurissime cordatis, apice obtusis, supra brunneis, sparse punctatis, subtus pallidioribus, nigro-puncticulatis, costa supra impressa, subtus praecipue ad basin laminae prominenti, venis primariis utrinque 7–10, obliquo-ascendentibus, a margine 3–5 mm. arcuato-anastomosantibus, venulis laxe reticulatis, inconspicuis; petiolo 3–4 mm. longo, atro, ruguloso, crassiusculo; paniculis 10–12 cm. longis, terminalibus, plerumque e basi ramosis, ramis ramulisque patulis, 4-angulatis, floribus sessilibus vel brevipedicellatis, in triadibus apice ramulorum ultimorum dispositis; alabastris elongato-obconicis, circiter 6 mm. longis, apice 3 mm. latis; calycis tubo obconico, lobis minute pustulatis, interioribus paullo majoribus; petalis liberis; staminibus numerosis; fructibus ignotis.

British North Borneo, Sandakan, *Elmer 20377* (type, Herb. Arn. Arb.; isotypes at Herb. Gray, New York Bot. Garden and Leiden), October–December, 1921: Dutch Borneo, Western Koetai, Soengei Gitan (S. Djembajan), *Waring 12* (*Boschproefstation bb: 12747*).

The large and widely branching terminal inflorescence, and the elliptic very short-petiolate leaves with rounded to emarginate base and obliquely spreading-ascending venation are the obvious characters of this species.

96. **Syzygium perpuncticulatum** (Merr.) comb. nov.

*Eugenia perpuncticulata* Merr. Univ. Calif. Pub. Bot. **15**: 220. 1929.

British North Borneo, Tawao, *Elmer 21223* (type, Herb. Univ. Calif.; isotypes, Herb. Arn. Arb., Gray), *21237*.

96A. **Syzygium perpuncticulatum** var. **brachythyrsum** (Merr.) comb. nov.

*Eugenia perpuncticulata* var. *brachythyrsa* Merr. l. c.

British North Borneo, Tawao, *Elmer 21273:* Dutch Borneo, Soengei Tepoetsy, *Jaheri 892;* Bloeöe, *Jaheri 1423*.

Known only from Borneo.

The species closely resembles *E. pustulata* Duthie, but differs in that the leaves are thinner in texture and copiously pellucid-punctate, also, in the dried state both the upper and the lower surfaces are similar in color. The impressed and clear-cut venation suggests *S. pontianakense* Merr. & Perry but the base of the leaves is strictly cuneate and the flowers lack the strongly lobed calyces of the latter.

The two specimens cited from Dutch Borneo compare favorably with the type in foliar and in floral characters, but it should be noted that they differ in having branches somewhat angular and cinereous.

97. **Syzygium megalophyllum** sp. nov.

Glabra; ramulis teretibus vel compressis, cinereis, 3–4 mm. diametro; foliis magnis ellipticis, 20–24 cm. longis, 9–12.5 cm. latis, basi late obtusis vel rotundatis vel abrupte breviterque cuneatis, apice obtusis vel rotundatis, acumine brevissimo, coriaceis, atrobrunneis, subtus pallidioribus, obscure vel non puncticulatis, costa supra canaliculata, venis primariis numerosis sicut ac vena submarginali interdum duplici utrinque prominulis, venulis manifestis, laxe reticulatis; petiolo ± 1.5 cm. longo, canaliculato; paniculis terminalibus vel ex axillis foliorum superiorum; floribus sessilibus; calycis tubo obconico, non stipitato, 5–6 mm. longo, lobis 1.5–2 mm. longis, rotundatis; petalis singillatim deciduis; staminibus numerosis, antherarum connectivo ad apicem glanduloso-mucronato; fructibus ignotis.

British North Borneo, without locality, *Creagh s. n.* (type, Herb. New York Bot. Gard.): Sarawak, Baram, *Hose 103*.

The species closely resembles *Syzygium grande* (Wight) Walp. in the foliar characters and the grayish bark of the branchlets, but the flowers are definitely without a pseudostipe.

98. **Syzygium splendens** (Blume) comb. nov.

*Microjambosa ? splendens* Blume Mus. Bot. Lugd.-Bat. **1**: 119. 1849.

*Jambosa (?) splendens* Miq. Fl. Ind. Bat. **1** (1): 435. 1855.

*Eugenia opaca* Koord. & Val. Meded. Lands Plant. **40**: 94. 1900 (Bijdr. Boomsoort. Java, **6**: 94), Atlas Baumart. Java, **3**: *f. 474*. 1915.

Sarawak, near Kuching, *Beccari 1336:* Dutch Borneo, Palo, *Becking 15;* Western Koetai, near Kemoel, *Endert 3695*, at ± 1100 m. alt.

Distribution: Java.

The specimens cited seem to approximate the carbon imprints of Koorders 12068β and a specimen in Herb. Blume (Rijks Herb.), both from Java.

99. **Syzygium Steenisii** sp. nov.

Arbor 9–12 m. alta glabra; ramulis teretibus vel leviter compressis, fuscis, ± 2 mm. diametro; foliis oblongo-ellipticis vel obovato-ellipticis, 5.5–10 (–12) cm. longis, 2.5–4(–5) cm. latis, apice obtusis vel obtuse breviterque acuminatis, basi acutis vel leviter cuneatis, coriaceis, haud pellucidis vel rarius obscure pellucidis, epunctatis, subtus glandulis minutissimis praeditis, costa supra impressa, subtus ad basin conspicua ± acutaque, venis primariis circiter 15, leviter elevatis, venulis laxe sed distincte reticulatis, vena intramarginali crenulata, ± 2 mm. a margine distante; petiolo 6–10 mm. longo; inflorescentiis terminalibus, 4–6 cm. longis, ramosis, rachi ac ramis 4-angulatis; floribus sessilibus; calycis lobis deciduis; fructibus immaturis urceolatis, ca. 5 mm. diametro.

British North Borneo, Mount Kinabalu, Mt. Nunkok, *Clemens 32683* (type, Arn. Arb. Herb.; isotypes at Buitenzorg, New York Bot. Gard. and Rijks Herb.), April 17, 1933, at about 1650 m. alt.; Marai Parai, *Clemens 32472*, at about 1500 m. alt.; Kamburanga to Paka, *Clemens 29177*, at about 2700 m. alt.; Kamburanga, *Clemens 28959*, at about 2400 m. alt.: Dutch Borneo, near Kemoel, *Endert 3588*, at ± 1200 m. alt., *Endert 3664*, at ± 1100 m. alt.; Goenoeng Kenepai, *Hallier 1697;* Boekit Milie, *Amdjah 153*.

The leaves of *Hallier 1697* are narrower than in the other specimens cited and distinctly cuneate; however, it is more like this species than any other, and fruiting specimens are difficult to match.

*Syzygium Steenisii* Merr. & Perry superficially suggests *Eugenia glauca* King, but the leaves are not glaucous, the petioles are shorter and the inflorescence is coarser and much more branched.

100. **Syzygium subsessilifolium** (Merr.) comb. nov.

*Eugenia subsessilifolia* Merr. Jour. Str. Branch Roy. As. Soc. **79**: 24. 1918, Enum. Born. Pl. 434. 1921.

Sarawak, *Sarawak Museum 76;* near Kuching, *Haviland 2923* (type, Herb. Singapore; isotypes, Herb. Buitenzorg, Rijks. Herb.); Rejang River, Sibu, *Haviland 1870*.

Reported only from Borneo.

In the group of species with subcordate and almost sessile leaves, *Syzygium subsessilifolium* (Merr.) is perhaps most easily separated by the more openly branching inflorescence and the clavate flower-buds. The leaves too appear recurved at the apex.

101. **Syzygium lunduense** (Merr.) comb. nov.

*Eugenia lunduensis* Merr. Jour. Str. Branch Roy. As. Soc. **79**: 25. 1918, Enum. Born. Pl. 430. 1921.

Sarawak, Mount Gadin, Lundu, *Haviland 985* (type, Herb. Singapore, phot.; isotype, Herb. Kew; carbon imprint of leaf).

Known only from the type-collection.

Owing to the very large leaves (up to 20 cm. long) and the comparatively small flowers (1 cm. long), this is a rather striking species.

102. **Syzygium clavatum** (Korth.) comb. nov.

*Jambosa clavata* Korth. Nederl. Kruidk. Arch. **1**: 201. 1847; Walp. Ann. **2**: 638. 1851–52; Miq. Fl. Ind. Bat. **1** (1): 434. 1855.

*Eugenia rhododendrifolia* Miq. Anal. Bot. Ind. **1**: 19, *t. 2*. 1850.

*Myrtus clavata* Korth. ex Miq. l. c., in syn.

*Caryophyllus speciosus* Blume ex Miq. l. c., in syn.

*Eugenia rhododendrifolia* forma *longifolia* Miq. op. cit. 20, *t. 3*.

*Jambosa borneensis* Miq. Fl. Ind. Bat. **1** (1): 434. 1855.

*Eugenia clavata* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 225. 1917, Enum. Born. Pl. 427. 1921.

British North Borneo, Kampong Jangkit, K. Penyu, *Goklin (B. N. B. For. Dept. 2803)*: Sarawak, Baram District, *Hose 689:* Dutch Borneo, Martapoera,

*Korthals s. n.* (Rijks Herb., part of *E. rhododendrifolia* Miq.), *Boschproefstation 1816;* Sakoembang, *Korthals s. n.* (Rijks Herb., part of *E. rhododendrifolia* Miq.); Kapoeas, *Teysmann 8229;* without definite locality, *Korthals s. n.*

Distribution: Palawan.

A species strongly suggesting *Syzygium claviflorum* Wall. but with smaller and more slender flowers.

It should be noted that Korthals in his original description of *Jambosa clavata* states: "Crescit in sylvis montium Pamatton et Sakoembang: *Borneo*" and in the same paper under other species he consistently credits Sakoembang to Borneo. Miquel, in 1850, based *Eugenia rhododendrifolia* wholly on *Jambosa clavata* Korth., citing the locality as "Prope Martapoura Bornei orient. austr. (KORTHALS) et ad m. Sakoumbang." Further he established a form, *E. rhododendrifolia* forma *longifolia*, collected on "m. Sakoumbang." Five years later he considered this species and its form to be two distinct species, Fl. Ind. Bat. **1** (1): 434. 1855, and gave for the locality of the second, *Jambosa borneensis* Miq., "Java, op den berg Sakoembang, door KORTHALS ontdekt." Dr. J. Th. Henrard assures us that Mount Sakoembang or Sakoempang is in southeastern Borneo, not in Java, and that Miquel was wrong in crediting the species to Java. Koorders and Valeton, Meded. Lands Plant. **40**: 117. 1900 (Bijdr. Boomsoort. Java, **6**: 117), in proposing the binomial *Eugenia ruminata* indicate that it should be compared with *Jambosa borneensis* Miq., *Eugenia rhododendrifolia*, var. *longifolia* Miq. and *E. Maingayi* Duthie, and also query whether *Clavimyrtus marginata* Blume may not be the same species. Judging from Koorders & Valeton's illustration of *E. ruminata*, Atlas Baumart. Java, **3**: *f. 486.* 1915, we do not consider the Bornean plants to represent the same species as the Javan one.

103. **Syzygium caudatilimbum** (Merr.) comb. nov.

*Eugenia caudatilimba* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 216. 1917, **79**: 22. 1918, Enum. Born. Pl. 426. 1921.

*Eugenia verticilligera* Ridl. Jour. Bot. **68**: 12. 1930.

British North Borneo, east coast, *Creagh s. n.* (type-collection of *E. verticilligera*); Kampong Brunei, Sipitang, Weston, *Suleiman (B.N.B. For. Dept. 2195)*; Soengei Kayeh, *Agullana 3890;* Sandakan, *Panching 673;* Mount Kinabalu, Penibukan, *Clemens 31943, 40567, 40628, 50249;* Upper Kinabalu, Gurulau Spur, *Clemens 50535:* Sarawak, without definite locality, *Native collector 1169* (type, Herb. Manila; isotype Arn. Arb.); Mount Merapok, *Native collector 10;* Baram District, Miri, *Hose 690;* near Kuching, *Haviland 2925.*

Reported only from Borneo.

Ridley's species has somewhat larger leaves than *S. caudatilimbum* (Merr.), but no essential differences are apparent on direct comparison of types. The species is exceedingly variable as to leaf-size but all the specimens apparently have the same leaf-texture and the same type of inflorescence.

104. **Syzygium brachyrachis** sp. nov.

Arbor 7.5–12 m. alta, glabra; ramulis ultimis teretibus vel leviter compressis, gracilibus, fulvis, circiter 1–1.5 mm. diametro; foliis lanceolatis vel anguste ellipticis, basi acutis vel obtusis, apice obtusis vel acutis vel breviter obtuseque acuminatis, 6–11 cm. longis, 2–4.5 cm. latis, subcoriaceis, supra olivaceo-viridibus, subtus pallidioribus, supra minute punctatis, subtus crebre glanduloso-punctatis, costa supra impressa, subtus elevata, venis primariis perspicuis, 7–10 inter se 5–10 mm. distantibus, in venam intramarginalem 1–2 mm. a margine distantem confluentibus, venulis subinconspicuis, reticulatis; petiolo atroviridi, vix 1 cm. longo, sulcato; inflorescentiis terminalibus vel ex axillis foliorum superiorum, vix 2 cm. altis, e basi ramosis, rachi ad 1 cm. longa, crassa, ramis brevissimis; alabastris pyriformibus, sessilibus, ferrugineis, ± 9 mm. longis, apice ± 6 mm. latis; calycis tubo ± 7 mm. longo, obconico, lobis exterioribus 2 mm. longis, interioribus 4 mm. longis, rotundatis; staminibus longis, antheris 0.5 mm. longis, connectivo apice glanduloso-mucronato; fructibus ignotis.

British North Borneo, Mount Kinabalu, Penibukan, *Clemens 30731* (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York and Leiden), January 4, 1933, at 1200–1500 m. alt., *31013, 31236, 31332, 32173, 40834, 50264.*

A species strongly suggesting *Eugenia Duthieana* King but with a more compact inflorescence and larger flowers. The leaves, too, differ in that the primary veins are closer together, the submarginal vein is less remote from the margin and the lower surface is copiously glandular.

105. **Syzygium gladiatum** (Ridl.) comb. nov.

*Eugenia gladiata* Ridl. Jour. Bot. **68**: 35. 1930.

Sarawak, Sapudang, *Haviland s. n.* (type, Herb. Kew).

Not reported from elsewhere.

We have seen no other collection of *S. gladiatum* (Ridl.). The inflorescence is so young that it is

difficult to suggest any particular relationship. At present the foliar characters are sufficiently distinctive to characterize the species.

106. **Syzygium Curtisii** (King) comb. nov.

*Eugenia Curtisii* King, Jour. As. Soc. Bengal, **70** (2): 129. 1901 (Mater. Fl. Malay. Pen. **3**: 559); Ridl. Fl. Malay Pen. **1**: 749. 1922.

*Eugenia coralina* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 207. 1917, **79**: 20. 1918, Enum. Born. Pl. 427. 1921.

Sarawak, *Native collector 1869* (type of *E. coralina*, Herb. Manila); near Kuching, *Haviland & Hose 1038/864, 864 E, L, M.*

Distribution: Malay Peninsula.

We do not find any essential differences between *S. Curtisii* (King) and *E. coralina* Merr. and accordingly reduce the latter. The Bornean plant has somewhat larger leaves than the Malayan one. The scaly bark of the rachis of the inflorescence and its branches suggests a possible relationship with *E. Helferi* Duthie.

107. **Syzygium valdevenosum** (Duthie) comb. nov.

*Eugenia valdevenosa* Duthie in Hook. f. Fl. Brit. Ind. **2**: 489. 1878; King, Jour. As. Soc. Bengal, **70** (2): 111. 1901 (Mater. Fl. Malay. Pen. **3**: 541); Ridley, Fl. Malay Pen. **1**: 743. 1922.

*Syzygium ellipticum* Wall. List, no. 3587 in part (fide King). 1831, *nomen.*

British North Borneo, Mount Kinabalu, Tenompok, *Clemens 27536, 28066, 28346, 28368, 28524, 28592, 28786, 29372, 29758;* Penibukan, *Clemens 30932;* Dallas, *Clemens 26461, 26675, 30248, 30309, 30310;* Upper Kinabalu, Kiau, *Clemens 40469;* Mount Bungal, *Clemens 27602, 51316:* Dutch Borneo, Western Koetai, near Bolset, *Endert 4037.*

Distribution: Malay Peninsula.

The above collections appear to be a reasonably good match for *Eugenia valdevenosa* Duthie with minor variations. In the Malay Peninsula material the submarginal vein seems to be gradually fainter and nearer the margin as it approaches the base of the leaf; on the other hand, it is bold in the Bornean specimens and in some there is a secondary and fairly distinct submarginal vein toward the base of the leaf. However, since this character is variable even in collections from the same locality, the difference is scarcely specific.

108. **Syzygium myrtifolium** (Roxb.) DC. Prodr. **3**: 261. 1828, *nomen;* Walp. Rep. **2**: 178. 1843.

*Eugenia myrtifolia* Roxb. Hort. Beng. 37. 1814, *nomen,* Fl. Ind. ed. 2, **2**: 490. 1832; Duthie in Hook. f. Fl. Brit. Ind. **2**: 483. 1878; King, Jour. As. Soc. Bengal, **70** (2): 118. 1901 (Mater. Fl. Malay. Pen. **3**: 548); Merr. Enum. Born. Pl. 431. 1921; Ridl. Fl. Malay Pen. **1**: 750. 1922, Jour. Bot. **68**: 35. 1930, non *Eugenia myrtifolia* Salisb. (1796), nec Sims (1821), nec Cambessed. (1829).

*Eugenia oleina* Wight, Ill. **2**: 15. 1841, *nomen;* Craib, Fl. Siam. Enum. **1**: 653. 1931, *nomen.*

*Syzygium oleinum* Wall. ex Walp. Rep. **2**: 178. 1843, *nomen.*

*Syzygium campanulatum* Korth. Nederl. Kruidk. Arch. **1**: 203. 1847; Walp. Ann. **2**: 630. 1851–52; Merr. Enum. Born. Pl. 426. 1921.

*Syzygium campanellum* Miq. Fl. Ind. Bat. **1** (1): 451. 1855.

*Eugenia acuminatissima* var. *parva* Merr. Philip. Jour. Sci. **1**: Suppl. 104. 1906.

*Eugenia parva* C. B. Rob. Philip. Jour. Sci. Bot. **4**: 391. 1909.

*Eugenia sinubanensis* Elmer, Leafl. Philip. Bot. **4**: 1424. 1912.

British North Borneo, Banguey Island, *Kloss 19251;* Sarawak, without definite locality, *Beccari 3544:* Dutch Borneo, without definite locality, *ex Hb. de Vriese.*

Distribution: Burma, Siam, Malay Peninsula, Sumatra, and the Philippines.

The last cited specimen, with neither locality nor collector indicated, Merrill (1930) found in the Rijks Herbarium bearing the name *Syzygium campanulatum* Korth. Although this may not be the type-collection, it agrees with Korthals' inadequate description as far as the latter goes. It also appears to be conspecific with *Eugenia myrtifolia* Roxb. of which we have two specimens from plants cultivated in the Calcutta Botanical Garden. *Kloss 19251* differs from the typical form in having compressed rather than angular branchlets, but the Philippine material representing forms cited in the synonymy shows such a blending of this condition that we cannot accept it, without additional supporting characters, to be a specific difference.

Happily we are enabled to retain the best known epithet, *myrtifolium,* although based upon a later homonym, owing to the fact that is was validated by Walpers before the publication of any other specific name (as far as we know) applicable to this species.

109. **Syzygium pyrifolium** (Blume) DC. Prodr. **3**: 261. 1828; Korth. Nederl. Kruidk. Arch. **1**: 204. 1847; Miq. Fl. Ind. Bat. **1** (1): 457. 1855.

*Calyptranthus pyrifolia* Blume Bijdr. 1090. 1826.

*Eugenia pyrifolia* Duthie in Hook. f. Fl. Brit. Ind. **2**: 487. 1878; King, Jour. As. Soc. Bengal, **70** (2): 99. 1901 (Mater. Fl. Malay. Pen. **3**: 529); Ridl. Fl. Malay Pen. **1**: 738. 1922.

*Eugenia tumida* Duthie l. c. 487; Craib, Fl. Siam. Enum. **1**: 665. 1931.

*Eugenia salaccensis* Koord. & Val. Meded. Lands Plant. **40**: 144. 1900 (Bijdr. Boomsoort. Java, **6**: 144), Atlas Baumart Java, **3**: *f. 501*. 1915; Merr. Enum. Born. Pl. 433. 1921.

Sarawak, Bidi Cave, *Clemens 20592*.

Distribution: Siam, Malay Peninsula, and Java.

This is a fruiting specimen which seems to match our material of the rather widespread *Syzygium pyrifolium*. Koorders & Valeton considered only the Javan form, but as far as we can see from the data available it is not specifically separable from the extra-Javan forms. The species is found in Siam (fide Craib), the southern part of the Malay Peninsula, Java, and Borneo.

110. **Syzygium pallidilimbum** sp. nov.

Arbor ± 25 m. alta; ramulis teretibus vel ultimis 4-angulatis, fuscis, 2–3 mm. diametro; foliis interdum suboppositis, oblongis, basi rotundatis, apice abrupte acutis, coriaceis, nitidulis, 7–14 cm. longis, 4–6 cm. latis, crebre minuteque punctatis, subtus minute nigro-glandulosis, in utraque pagina flavovirentibus, venis primariis subtransversis, supra paullo impressis, subtus haud perspicuis, inter se 3–7 mm. distantibus, in venam submarginalem obscuram circiter 1 mm. a margine distantem confluentibus, costa supra sulcata, subtus vix prominula, venulis obscuris; petiolo ± 3 mm. longo, crasso rugosoque; inflorescentiis laxis, terminalibus et ex axillis foliorum superiorum, ad 10 cm. longis, solitariis vel fasciculatis, saepe e basi ramosis, ramulis tetragonis, angulis interdum acutiusculis; floribus sessilibus, in apice ramulorum in triadibus dispositis vel plurimis aggregatis; calycis tubo supra subgloboso deorsum longe stipitiformi 7–9 mm. longo, lobis deciduis (?); staminibus circiter 3 mm. longis, antheris eglandulosis; ovario 3-loculari; fructibus ignotis.

Dutch Borneo, Pleihari, Kintap, *Dachlan 19* (*Boschproefstation bb: 12891*), September 25, 1928, at ± 250 m. alt. (type, Herb. Buitenzorg); Tandjoengredeb, Labanan, *Boschproefstation bb: 11492*.

Although clearly belonging to that group of species of *Syzygium* with clavate flowers, *S. pallidilimbum* does not closely resemble any of them. It is readily distinguished by the 4-angled branchlets, the very short-petiolate and oblong pale leaves with rounded bases and the open inflorescence. The inflorescence suggests that of *S. fusticuliferum* (Ridl.) but the flowers, which are already past anthesis, are more slender; the calyx-lobes are apparently soon deciduous, only a few remnants being found in the entire collection.

111. **Syzygium viridifolium** (Elmer) comb. nov.

*Eugenia viridifolia* Elm. Leafl. Philip. Bot. **4**: 1420. 1912.

*Eugenia Fraseri* Ridl. Jour. Bot. **68**: 33. 1930.

British North Borneo, Kudat, *Fraser 139* (type of *E. Fraseri*, Herb. Kew; phot.); Mount Kinabalu, Tenompok, *Clemens 26890*, October 27, 1931, at about 1500 m. alt.

Distribution: Palawan.

We have been unable to distinguish Ridley's *E. Fraseri* from Elmer's *E. viridifolia* from Palawan Island, and accordingly reduce it to synonymy. The species is very close to *E. teretiflora* Koord. & Val. which, however, has distinctly larger calyx-lobes.

In the dried material of *S. viridifolium* (Elmer) the venation of the leaves is inconspicuous; the very slender primary veins are impressed above and manifest beneath. The upper surface of the leaves is punctate, but the lower is scarcely, if at all glandular.

112. **Syzygium napiforme** (Koord. & Val.) comb. nov.

*Eugenia napiformis* Koord. & Val. Meded. Lands Plant. **40**: 120. 1900 (Bijdr. Boomsoort. Java, **6**: 120); Koord. Exkursionsfl. Java, **2**: 683. 1912; Koord.-Schumach. System. Verzeichn. **1** ($1^{222}$): 56. 1913; Koord. & Val. Atlas Baumart. Java, **3**: *f. 489*. 1915; Merr. Mitteil. Inst. Allg. Bot. Hamburg, **7**: 269. 1937.

British North Borneo, Mount Kinabalu, Tenompok, *Clemens 28547*, at about 1500 m. alt.; Keebambang River, *Clemens 34407*, at 1200–1800 m. alt.; Marai Parai, *Clemens 32456:* Dutch Borneo, Western Koetai, near Long Petak, *Endert 3169;* Kemoel, *Endert 4459;* without definite locality, *Winkler 888*.

Distribution: Malay Peninsula, Java.

The specimens above cited compare favorably with two collections of *Eugenia napiformis* Koord. & Val. from the Preanger region, Java. The verruculose

calyx and the obconic to napiform fruit are the distinctive characters of this species. We do not know that *S. napiforme* has been reported from the Malay Peninsula, but we believe that at least one collection, *King's collector 5651*, Larut, Perak (Gray Herb. and New York Bot. Gard. Herb.), labeled *Eugenia penangiana* Duthie represents *Syzygium napiforme* (Koord. & Val.).

113. **Syzygium ochneocarpum** (Merr.) comb. nov.

*Eugenia ochneocarpa* Merr. Univ. Calif. Pub. Bot. **15**: 217. 1929.

British North Borneo, Tawao, *Elmer 21522* (type, Herb. Univ. Calif.; isotypes at Herb. Arn. Arb., Gray, New York Bot. Gard.): Sarawak, Mount Matang, *Clemens 20958;* Lundu, *Clemens 22279;* Kuching, *Beccari 1196*, *Haviland 2932*.

Known only from Borneo.

A species well marked by the thick and yellowish-brown leaves (when dry) with obscure venation and the large (1.5 cm. or more long) pyriform fruits. *Haviland 2932* is slightly atypical in having somewhat smaller leaves and inflorescence with more slender rachis and branches.

114. **Syzygium fusticuliferum** (Ridl.) comb. nov.

*Eugenia fusticulifera* Ridl. Jour. Bot. **68**: 33. 1933.

Sarawak, without definite locality, *Beccari 3466* (not *2466* as cited by Ridley, type, Herb. Kew; phot.): Dutch Borneo, Western Koetai, near Lahoem, *Endert 1887;* near Moeara Kaman, *Endert 1509;* near Sabentoeloeng, *Endert 1522;* along the Sabentoeloeng river, *Endert 1568;* Lanjah, Goenoeng Pandan, *Teysmann 7938;* Poeloe Madjang, *Teysmann 7932*, *7942*, *Jaheri s. n.*, *Boschproefstation bb: 7666;* Sampit, Bangkal, *Boschproefstation bb: 9514;* Semitau, *Boschproefstation bb: 17079;* Soengei Keniboeng, *Hallier 1313;* Soengei Kenepai, *Hallier 2202;* Soengei Poening, *Obi 1* (*Boschproefstation 2393*); Soengei Apoh, *Obi 26b;* without definite locality, *Teysmann s. n.*

Distribution: Malay Peninsula (fide Henderson).

*Syzygium fusticuliferum* (Ridl.) is one of the most easily recognized species owing to the slenderly ovate-elliptic leaves with inconspicuous venation, the elongate-turbinate flowers with short stamens (in some specimens often in bud not filling the ± cup-like part of the calyx-tube) and the slightly constricted mouth of the calyx-tube. After drying the flowers and the leaves are either cinnamon-brown or chocolate color.

115. **Syzygium adenophyllum** sp. nov.

Arbor glabra, ± 30 m. alta; ramulis teretibus vel compressis, novellis obscure angulatis et copiose glandulosis; foliis late ellipticis, 4–7 cm. longis, 2–4 cm. latis, apice obtuse acuminatis, acumine ad 1 cm. longo, basi cuneatis, in utraque pagina copiose minuteque glanduloso-pustulatis, haud pellucidis (novellis copiose pellucido-punctatis), subtus nigris glandulis conspersis, creberrime penninerviis, inconspicue reticulatis; petiolo 10–13 mm. longo, ruguloso; inflorescentiis terminalibus, e basi ramosis; alabastris sessilibus, 11–13 mm. longis, apice circiter 4 mm. diametro, elongato-turbinatis.

British North Borneo, Upper Kinabalu, Penibukan, *Clemens 50338* (type, Herb. Arn. Arb.), November 13, 1933, at about 1650 m. alt.

The single available specimen of this collection is a branch showing young tips and the broken remnants of two inflorescences with unexpanded flowers. The buds are considerably longer than those of *S. rugosum* Korthals, but the species is evidently one of that alliance; the shallowly lobed calyx covers the largest part of the rounded upper portion of the bud, the corolla forming only the small ± rounded-conical tip.

116. **Syzygium oligomyrum** Diels, Bot. Jahrb. **60**: 313. 1926.

Dutch Borneo, Sampit, *Hackenberg 107* (type, Berlin Bot. Gard.; fragm.); Soengei Kenepai, *Hallier 2192;* Semitau, *Boschproefstation bb: 17092*.

Not reported from elsewhere.

Professor Diels very generously sent us a fragment of the type of this species. The leaves are a good match for those of *Hallier 2192*, a flowering specimen. In this the flower-buds are about 1 cm. long, subglobose at the apex and about 5 mm. in diameter, tapering to a narrow base; the calyx is 6–7 mm. long, truncate except for 5 minute teeth or lobes which are scarcely more than 0.5 mm. in diameter; the unopened and apparently calyptrate corolla covers the upper half of the subglobose apex of the bud. The flower-bud is sufficiently distinct as are also the large (16–20 cm. long) and openly veined leaves with the intramarginal vein scarcely 2 mm. within the margin. The very thick pericarp suggests a possible alliance with *S. ochneocarpum* (Merr.) or *S. napiforme* (Koord. & Val.) but the floral characters are widely different from either.

117. **Syzygium Christmannii** sp. nov.

*Eugenia laevicaulis* sensu Ridl. Jour. Bot. **68**: 15. 1930, non Duthie.

Ramuli leviter compressi, ca. 3 mm. diametro; foliis ellipticis, 7.5–10 cm. longis, 3–4 cm. latis, apice acuminatis, basi rotundo-cuneatis, coriaceis, supra minute puncticulatis, subtus glandulis minutissimis conspersis, costa supra canaliculata, subtus prominente, venis primariis supra obscuris, subtus parum elevatis, in venam submarginalem ca. 2 mm. a margine distantem confluentibus, venulis vix manifestis; petiolo ± 1 cm. longo, nigrescente; inflorescentiis terminalibus vel ex axillis superiorum foliorum, ± 4 cm. longis, paniculis 3 vel pluribus, rachi ac ramis compressis vel obtuse angulatis; alabastris sessilibus, circiter 12 mm. longis, basi stipitatis (stipite ± 5 mm. longo), apice obovoideis; calycis limbo truncato vel minute dentato; petalis singillatim vel calyptratim deciduis; staminibus numerosis, ca. 1 cm. longis, antheris ca. 0.5 mm. longis; fructibus ignotis.

Sarawak, without definite locality, *Beccari 3251* (type, Herb. Kew).

Although Ridley referred *Beccari 3251* (cited by error as *3271*) to *E. laevicaulis* "King," it certainly does not represent Duthie's species as we interpret it from *Curtis 750*. The pale branchlets and the large flowers suggest *S. leucophloium* (*Jambosa cuneata* Blume); in the latter, however, the calyx-lobes are large and rounded, whereas, in *S. Christmannii* the calyx-limb is truncate or at best dentate. The leaves also differ somewhat in outline and venation. The species is dedicated to G. F. Christmann, co-author of the "Vollständiges Pflanzensystem" (1777–88).

118. **Syzygium rugosum** Korth. Nederl. Kruidk. Arch. **1**: 204. 1847.

*Syzygium rigidum* Wall. List, no. 3581 (fide King). 1831, *nomen.*

*Eugenia varians* Miq. Anal. Bot. Ind. **1**: 21. 1850, pro parte.

*Eugenia Goodenovii* King, Jour. As. Soc. Bengal, **70** (2): 117. 1901 (Mater. Fl. Malay. Pen. **3**: 547), pro parte.

*Eugenia rugosa* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 224. 1917, **79**: 21. 1918, Enum. Born. Pl. 433. 1921, quoad syn., non quoad pl.

*Eugenia johorensis* Ridl. Fl. Malay Pen. **5**: 308. 1925, non *E. johorensis* Ridl. op. cit. **1**: 725. 1922.

*Eugenia Motleyi* Ridl. Jour. Bot. **68**: 33. 1930.

Dutch Borneo, Bandjermasin, *Motley 665, 786, 834* (type of *E. Motleyi*, Herb. Kew); Karrau, Korthals s. n. (type of *S. rugosum*, Rijks Herb.); Doesson, *Korthals s. n.;* Djihi, *Winkler 3262;* Soengei Kenepai, Hallier 2161.

Distribution: Malay Peninsula, Sumatra (fide Ridley).

We are not at all sure of the limits of this species. There is much variation in the texture of the leaves and the obscurity of the venation. The definite characters appear to be: leaves rounded at the base, copiously glandular, veins very fine and fairly close (2–5 mm. apart), the intramarginal vein scarcely a millimeter within the margin; inflorescence fairly compact, axillary and terminal, flowers not particularly constricted below the calyx-limb.

We have had the privilege of examining the types of *S. rugosum* Korth., *E. johorensis* Ridl. and *E. Motleyi* Ridl. Also, through the courtesy of C. C. Calder, the Superintendent of the Royal Botanic Garden, Calcutta, we have obtained a fragment of *Goodenough 1759*, and examined *Kunstler 8741* (Kew Herb.). The latter surely represent a different species, and King's description is apparently drawn from these (which he stated were better material than Wallich's) although he believed Wallich's material of *S. rigidum* to be the same entity. We prefer to keep the name *E. Goodenovii* King for the species represented by *Goodenough 1759* and *Kunstler 8741*, merely noting that *S. rigidum* Wall. is a *nomen nudum* and as such it is without any nomenclatural standing. The first valid name for the species we are interested in is *S. rugosum* Korth. As to *E. Motleyi* Ridl. we here note that the leaves separated from their respective plants could not be distinguished; the flowers on the type of *S. rugosum* Korth. are rather immature, but as far as we can see they compare favorably with those of *E. Motleyi* Ridl.; and both have obscurely 4-angled branchlets. The fruits of *E. Motleyi* Ridl. are blue-black and elongate-subglobose but none of the other specimens cited show mature fruits, so it is hard to predict what they might be. On account of the other strong likenesses between these plants, regardless of the fruits, we prefer to retain them as representing a single species until more substantial differences appear.

119. **Syzygium attenuatum** (Miq.) comb. nov.

*Jambosa attenuata* Miq. Fl. Ind. Bat. **1** (1): 437. 1855.

*Eugenia attenuata* Koord. & Val. Meded. Lands Plant. **40**: 121. 1900 (Bijdr. Boom-

soort. Java, **6**: 121); Atlas Baumart. Java. **3**:*f. 490.* 1915; Ridl. Jour. Bot. **68**: 33. 1930.

British North Borneo, Mount Kinabalu, Gurulau Spur, *Clemens 50467*, at about 1500 m. alt.; Marai Parai, *Clemens 32267*, at about 1500 m. alt.; Penibukan, *Clemens 40566, 50280, 50325;* head of Colombon River, *Clemens 32450*, at about 1500 m. alt.; Tenompok, *Clemens 29474:* Sarawak, Matang, *Beccari 1567;* Baram, *Haviland & Hose 3214A:* Dutch Borneo, Western Koetai, Kemoel, *Endert 4483;* Tidoengsche Land, Nainoekan, *Boschproefstation bb: 19790;* cult. in Hort. Bog. *V. C. 49.*

Distribution: Java.

This group represented by *S. attenuatum* (Miq.), *S. rugosum* Korth., *Eugenia penangiana* Duthie, *E. purpuricarpa* Elm., and perhaps other species, requires critical revision both from the point of view of field-observation and by comparisons of the actual types. *Eugenia penangiana* Duthie as represented by the collections from the Malay Peninsula in our assembled herbaria consists of what we take to be at least three different entities: one which we interpret as *S. napiforme* (Koord. & Val.); another with thin leaves obviously veined, which is scarcely separable from *E. purpuricarpa* Elm., type from Palawan Island, or from some of the collections above cited (unless it be by the rather larger calyx-lobes in the specimen from Government Hill, Penang); and third, a collection with very thick leaves and half-grown? fruits, 1.5 cm. long. Duthie described the leaves as "thick . . . nerves indistinct on both surfaces"; King frankly states that two species may be covered by his description as some of the specimens have smaller thinner leaves and flowers with more constricted pseudostalks than the type-specimen, *Maingay 744;* Ridley goes even further and says "leaves thinly coriaceous." In view of these statements by men familiar with the actual specimens, we are unable to determine whether *E. penangiana* Duthie is or is not conspecific with *S. attenuatum* (Miq.). Certainly some specimens are not separable from the foliar collections which represent *E. attenuata* Koord. & Val. in the herbarium at Buitenzorg. The differences between this species and *S. rugosum* Korth. are enumerated under that species. Although we frankly admit that the two species are very close, and possibly not distinct from each other, we hesitate to make further reductions without mature fruit and flowers in all stages of development.

120. **Syzygium sarawacense** (Merr.) comb. nov.

*Eugenia sarawacensis* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 214. 1917, Enum. Born. Pl. 433. 1921.

*Eugenia viburnifolia* Ridl. Jour. Bot. **68**: 15. 1930.

British North Borneo, Balambangan Island, *Kloss 19284:* Sarawak, Matang Road, *Native collector 812* (type of *E. sarawacensis* Merr., Herb. Manila; isotype, Herb. Arn. Arb.); near Kuching, *Haviland & Hose 3219* (type of *E. viburnifolia* Ridl., Herb. Kew): Dutch Borneo, Kapoeas, *Teysmann 8227.*

Known only from Borneo.

In the available material we do not find characters sufficiently well marked to distinguish more than one species. Unquestionably *E. viburnifolia* Ridl. is an exact counterpart of *S. sarawacense* (Merr.). The strongly marked submarginal veins of the leaves suggest a possible relationship with *E. valdevenosa* Duthie, but the latter has much longer leaves and angled branchlets. *S. sarawacense* (Merr.) is closely allied to *S. Muelleri* Miq. It is easily separated, however, by its very dark brown (when dry) and obtusely acuminate leaves, slightly longer petioles, and ± dentate calyx-limb..

121. **Syzygium Muelleri** Miq. Fl. Ind. Bat. **1** (1): 453. 1855.

*Eugenia Muelleri* Miq. Anal. Bot. Ind. **1**: 23, *t. 6.* 1850; Merr. Enum. Born. Pl. 431. 1921.

*Syzygium venulosum* Wall. List, no. 3585. 1831, *nomen.*

*Eugenia venulosa* Wall. List, no. 3585. 1831, in syn.; Duthie in Hook. f. Fl. Brit. Ind. **2**: 490. 1878; King, Jour. As. Soc. Bengal, **70** (2): 123. 1901 (Mater. Fl. Malay. Pen. **3**: 553); Ridl. Fl. Malay Pen. **1**: 746. 1922, Jour. Bot. **68**: 35. 1930.

*Syzygium obovatum* Korth. Nederl. Kruidk. Arch. **1**: 205. 1847, non DC.

*Myrtus obovata* Korth. ex Miq. Anal. Bot. Ind. l. c., in syn.

*Syzygium furcatum* Blume ex Miq. l. c., in syn.

British North Borneo, Sandakan, *Creagh s. n.* (carbon imprint of leaf; Herb. Kew): Dutch Borneo, Martapoera, *Korthals s. n.* (type, Rijks Herb.); Beneden Dajak, Soengei Tervesan, *Semerve bb: 2093;* Berouw, Betemaean, *Boschproefstation bb: 19037;* without definite locality, *cult. Hort. Bog. V. B. 65, 65a.*

Distribution: Malay Peninsula.

Merrill's examination of the type of *Eugenia Muelleri* Miq. at the Rijks Herbarium in 1930 shows

that the collections, *Hose 196* and *Elmer 20377*, previously referred to this species, were wrongly identified. In addition to the collections cited above, we have seven sheets of material cultivated at Buitenzorg which we are unable to distinguish from our material of *E. venulosa* Duthie from the Malay Peninsula. Since Miquel's name has right of priority we are referring our Malayan collections to *S. Muelleri* Miq. The species is well marked by the oblanceolate or obtusely elliptic leaves with strongly ascending venation.

122. **Syzygium oblatum** Wall. List, no. 3569. 1831; A. M. & J. M. Cowan, Trees North. Bengal, 68. 1929; Merr. & Perry, Jour. Arnold Arb. **19**: 101. 1938.

*Eugenia oblata* Roxb. Hort. Beng. 37. 1814, *nomen*, Fl. Ind. ed. 2, **2**: 493. 1832; Kurz, For. Fl. Brit. Burma, **1**: 488. 1877; Duthie in Hook. f. Fl. Brit. Ind. **2**: 492. 1878; King, Jour. As. Soc. Bengal, **70** (2): 114. 1901 (Mater. Fl. Malay. Pen. **3**: 544); Merr. Jour. Str. Branch Roy. As. Soc. **77**: 225. 1917, Enum. Born. Pl. 431. 1921; Ridl. Fl. Malay Pen. **1**: 749. 1922, pro parte, Jour. Bot. **68**: 34. 1930; Craib, Fl. Siam. Enum. **1**: 652. 1931.

Sarawak, near Kuching, *Beccari 735:* Dutch Borneo, Sampit, Soengei Temoelian, *Delmaar bb: 2083.*

Distribution: Burma, Siam, Malay Peninsula.

In lieu of a better disposition of these collections we have associated them with these species. The lobes of the calyx are not so strongly developed as in the Chittagong material, but the differences are so meagre that many more collections would be essential to give assurance of real specific differences.

Not having seen any authentic material, also not accepting the descriptions as fitting our collections particularly well, we have intentionally omitted *Syzygium truncatum* Miq. Fl. Ind. Bat. **1** (1): 455. 1855, and *Jambosa pulchella* Miq. op. cit. 422, from the usual synonymy.

123. **Syzygium cerasiforme** (Blume) comb. nov.

*Myrtus cerasiformis* Blume Bijdr. 1087. 1826.
*Eugenia ? cerasiformis* DC. Prodr. **3**: 274. 1828.
*Jambosa cerasiformis* Hassk. Cat. Hort. Bog. Alt. 262. 1844; Miq. Fl. Ind. Bat. **1** (1): 433. 1855; Koord. & Val. Meded. Lands Plant. **40**: 114 (in syn.), 116 (nota). 1900 (Bijdr. Boomsoort. Java, **6**: 114, 116).

Dutch Borneo, Bandjermasin, *Korthals s. n.*

Originally described from Java.

Korthals' collection is a perfect match for an isotype of Blume's *Myrtus cerasiformis* from Java, in the herbarium of the New York Botanical Garden. At present this is an equivocal species and we regret that we are not able to throw much light on it. Blume clearly states "calicibus 4-fidis . . . (a *M. lineata* cui nimis affinis, etiam differt . . . )." For this reason it probably has been reduced to *Eugenia lineata* Duthie. Although the specimen at hand is fragmentary and most of the calyx-lobes have already fallen, what appear to be the remnants of two remain attached to the limb and these are between 0.5 and 1 mm. long; also the width of the calyx-limb at the apex practically equals the length of the calyx. We do not believe the species to be conspecific with *S. lineatum* (DC.) Merr. & Perry. The venation of the leaves closely resembles that of some specimens determined as *Eugenia Zippeliana* (Miq.) Koord. & Val.

124. **Syzygium Villamilii** (Merr.) comb. nov.

*Eugenia Villamilii* Merr. Philip. Jour. Sci. Bot. **13**: 98. 1918, Enum. Born. Pl. 434. 1921, Univ. Calif. Pub. Bot. **15**: 216. 1929.

British North Borneo, Kalabakan watershed, in forests along the Pinajos River, *Villamil 229* (type of *E. Villamilii* Merr., Herb. Manila; isotypes, Herb. Arn. Arb., Buitenzorg); Tawao, *Elmer 20929;* Timbun Mata, *Puasa* (*B. N. B. For. Dept. 2740*).

Known only from Borneo.

This is a rather distinct species. It should be noted that *Elmer 20929* differs from the type in that the midrib on the lower surface of the leaf is keeled; this is decurrent down the petiole and sometimes down the upper part of the node of the branchlet so that the branchlet appears angled. The leaves may or may not be punctate. In the duplicate of the type-sheet there are two leaves as small as most of those on Puasa's specimen; apart from the small leaves, Puasa's collection compares favorably with the type in other characters (both the venation and the inflorescence).

125. **Syzygium elliptilimbum** (Merr.) comb. nov.

*Eugenia elliptilimba* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 211. 1917, **79**: 21. 1918, Enum. Born. Pl. 428. 1921, Enum. Philip. Fl. Pl. **3**: 165. 1923.

Sarawak, without locality, *Native collector 254* (type, Herb. Manila), *1818;* near Kuching, *Haviland 1987:* Dutch Borneo, Soengei Kenepai, *Hallier 2092.*

Reported also from Mindanao.

The size and the venation of the leaves strongly suggest those of *Syzygium grande* (Wight) Walp. but the flowers are much more slender and the calyces are truncate.

126. **Syzygium remotifolium** (Ridl.) comb. nov.

*Eugenia remotifolia* Ridl. Jour. Bot. **68**: 36. 1930.

British North Borneo, Balambangan Island, *Kloss 19283:* Sarawak, near Kuching, *Haviland & Hose 3216* (type, Herb. Kew; phot.): Dutch Borneo, Soengei Besar, near Pleihari, *Soeriodikarto 2331;* Boentok, Madara (collector not indicated) *2363;* Martapoera, near Anawit, *Dachlan bb: 2148.*

Reported only from Borneo.

In placing these specimens from Dutch Borneo with this species, we particularly note that all the leaves are profusely glandular (pellucid-punctate). Although in venation, size, and color in drying they match those of *Kloss 19284* fairly well, the leaves of the latter certainly are more obscurely glandular, and Ridley does not mention that character in his original description of the species. *S. remotifolium* (Ridl.) is closely allied to *S. elliptilimbum* (Merr.) but the inflorescence is coarser and denser than in the latter.

127. **Syzygium kalahiense** Korth. Nederl. Kruidk. Arch. **1**: 205. 1847; Walp. Ann. **2**: 630. 1851–52; Miq. Fl. Ind. Bat. **1** (1): 456. 1855.

*Eugenia kalahiensis* Miq. Anal. Bot. Ind. **1**: 23, *t. 5.* 1850; Merr. Enum. Born. Pl. 429. 1921.

Dutch Borneo, without definite locality, *Korthals s. n.* (type, Rijks Herb.); Martapoera, *Korthals s. n.;* Soengei Smittouw, *Hallier 1267.*

Known only from Borneo.

Although Hallier's specimen is in fruit, it certainly compares favorably with the type. Most, although not all, of the leaves are a little broader than those in the original but they are alike as to texture, venation and punctation. The species is fairly easy to identify by its whitish to light brown branchlets, the short (± 3 cm. long) infructescence, and the leaf-venation. The immature fruits are subglobose with the calyx-margin almost as broad as the apex of the fruits. The primary veins are 3–5 mm. apart and join the submarginal vein very close to the margin of the leaf.

128. **Syzygium laevigatum** Miq. Fl. Ind. Bat. **1** (1): 457. 1855; Walp. Ann. **4**: 836. 1857.

*Eugenia laevigata* Miq. Anal. Bot. Ind. **1**: 25, *t. 8.* 1850; Merr. Enum. Born. Pl. 429. 1921.

Dutch Borneo, Doesson, *Korthals s. n.* (type, Rijks Herb.); without definite locality, *Korthals s. n.*

Known only from the above cited specimens.

The venation of the leaves of this species suggests that of *S. lineatum* (DC.) Merr. & Perry and *S. cerasiforme* (Blume); the flowers have a shorter pseudostipe than in either of the last two mentioned species and the upper part of the bud is essentially globose. Up to the present we have been unable to match the original collections.

129. **Syzygium inophyllum** DC. Prodr. **3**: 260. 1828; Walp. Rep. **2**: 180. 1843.

*Eugenia inophylla* Roxb. Hort. Beng. 37. 1814, *nomen,* Fl. Ind. ed. 2, **2**: 496. 1832; Wight, Ill. **2**: 17. 1841, Ic. **2**: *t. 623.* 1843; Duthie in Hook. f. Fl. Brit. Ind. **2**: 480. 1878; King, Jour. As. Soc. Bengal, **70** (2): 114. 1901 (Mater. Fl. Malay. Pen. **3**: 544); Ridl. Fl. Malay Pen. **1**: 750. 1922.

*Jambosa inophylla* Miq. Fl. Ind. Bat. **1** (1): 433. 1855.

Sarawak, Kuching, *Haviland & Hose 3220;* Sibu, Rejang River, *Haviland 2929;* without locality, *Beccari 1201:* Dutch Borneo, Soengei Risi, Boentok, *Obi 2328;* Soengei Kenara, *Hallier 1370;* near Bati-Bati, *Labohm 22b;* Soengei Samah, *Teysmann s. n.*

Distribution: Malay Peninsula, Moluccas.

The above citations compare favorably with the material of *Syzygium inophyllum* DC. from the Malay Peninsula. The fine and close venation with reticulations almost as well marked as the main veins, and the elongate-turbinate calyx with truncate or obscurely dentate limb are the most obvious characters of this species.

130. **Syzygium javanicum** Miq. Fl. Ind. Bat. **1** (1): 461. 1855, Suppl. **1**: 312. 1862.

*Syzygium expansum* Wall. List, no. 3567. 1831, *nomen.*

*Syzygium euneuron* Miq. Fl. Ind. Bat. Suppl. 1: 314. 1862.

*Eugenia expansa* Duthie in Hook. f. Fl. Brit. Ind. **2**: 491. 1878; King, Jour. As. Soc. Bengal, **70** (2): 113. 1901 (Mater. Fl. Malay Pen. **3**: 543); Ridl. Fl. Malay Pen. **1**: 745. 1922, non Spring (1837).

*Eugenia Robinsoniana* Ridl. Jour. Fed. Malay States Mus. **4**: 13. 1909, Fl. Malay Pen. **1**: 734. 1922 (fide Craib and also Henderson).

*Eugenia Evansii* Ridl. Jour. Fed. Malay States Mus. **10**: 134. 1920, Fl. Malay Pen. **1**: 747. 1922 (fide Henderson).

*Eugenia brunneoramea* Merr. Univ. Calif. Pub. Bot. **15**: 217. 1929.

*Eugenia euneura* Craib, Fl. Siam. Enum. **1**: 640. 1931.

British North Borneo, Tawao, *Elmer 20622, 21123* (type of *E. brunneoramea*, Herb. Univ. Calif.); Apas Towan, *Wood 2477:* Sarawak, Matang, *Beccari 1851:* Dutch Borneo, Samenggaris, *Amdjah 1079;* Western Koetai, Long Poehoes, *Endert 4960;* near Moeara Moentai, *Endert 2000;* near Long Djenau, *Endert 5083;* near Lahoem, *Endert 1805;* Bontang, *Rutten 500;* Soengei Landak, *Teysmann s. n.;* Goenoeng Pamatton, *Korthals s. n.;* Bandjermasin, *Motley 688, 1120;* between Bandjermasin and Martapoera, *Winkler 3428;* Kapoeas, *Teysmann 8064, 8065;* Poeroektjahoe, Moeara Baboeat, *Obi 3620* (*Boschproefstation bb: 11000*); Martapoera, *Kawakami s. n., Boschproefstation 1846;* without definite locality, *de Vriese s. n., Korthals s. n.*

Distribution: Siam, Malay Peninsula, Sumatra.

The collections cited are reasonably constant. *Motley 688* has smaller leaves and the flowers are only in bud. *Boschproefstation 1846* at first glance would seem to be mostly lacking the branching inflorescence, the flowers being pseudo-umbellate at the ends of the peduncles; in every other respect, however, the specimen cited agrees with this species and we are disposed to look upon the floral arrangement as an individual variation. As might be inferred from the synonymy, this is a fairly wide-ranging species.

131. **Syzygium racemosum** (Blume) DC. Prodr. **3**: 261. 1828; Miq. Fl. Ind. Bat. **1** (1): 448. 1855.

*Calyptranthus racemosa* Blume Bijdr. 1089. 1826.

*Eugenia jamboloides* Koord. & Val. Meded. Lands Plant. **40**: 136. 1900 (Bijdr. Boomsoort. Java, **6**: 136), Atlas Baumart. Java, **3**: *f. 497*. 1915.

Dutch Borneo, Martapoera, *Korthals s. n.;* Goenoeng Sakoembang, *Korthals s. n.* in part.

Distribution: Java.

These collections all have immature inflorescence but they are surely a good match for Blume's collection of *Calyptranthus racemosa* from Java. The species is very close to *S. javanicum* Miq. but may be distinguished by the pale branchlets, the slightly closer and finer venation, and the somewhat acuminate base of the leaves.

132. **Syzygium baramense** (Merr.) comb. nov.

*Eugenia baramensis* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 218. 1917, **79**: 21. 1918, Enum. Born. Pl. 426. 1921.

Sarawak, Baram District, Entoyut River, *Hose 399* (type of *E. baramensis*, Herb. Manila); near Kuching, *Haviland 2380/1884;* Mount Poi, *Mjoberg 152.*

Known only from Borneo.

In general habit this species closely resembles *Syzygium Jaherii* Merr. & Perry, but *S. baramense* (Merr.) has glabrous branchlets and fascicled flowers; in contrast, *S. Jaherii* has granular-puberulent branchlets and inflorescence-axes, and also divaricate flowers. *Jaheri 908*, Soengei Tepoetsy, Dutch Borneo, probably represents this species, but the specimen is with a rather poor inflorescence; some leaves are as large as 13 cm. long and 4.5 cm. wide, this is much larger than in the type; but, the color of the bark and the sharply angled branchlets as well as the flower-bud is characteristic of this species.

133. **Syzygium filicaudum** sp. nov.

Frutex glaber 5–8 m. altus; ramis ramulisque gracilibus, teretibus, brunneis; foliis oblongo-ellipticis, 5–12 cm. longis, 2–5 cm. latis, basi acutis vel obtusiusculis, apice obtuse acuminatis, acumine ± 1.5 cm. longo 1–2 mm. lato, coriaceis, supra atrobrunneis, subtus brunneis, obscure minuteque punctatis, costa supra impressa, subtus prominula, venis primariis crebris, obliquis fere subtransversis, 1–3 mm. remotis, parallelis, in venam submarginalem 1 mm. a margine confluentibus; petiolo ± 5 mm. longo; inflorescentiis terminalibus axillaribusque 5–10 mm. longis, paucifloris, ramis brevissimis; alabastris pyriformibus, 5 mm. longis, apice 3 mm. latis, floribus sessilibus; calycis lobis vix 0.5 mm. longis; petalis calyptratim deciduis; staminibus numerosis, antheris ovato-ellipticis, circiter 0.5 mm. longis, connectivo ad apicem glanduloso-mucronato; fructibus ignotis.

Dutch Borneo, Western Koetai, near Kemoel, *Endert 3680* (type, Herb. Buitenzorg), October 28, 1925, at ± 1100 m. alt., *Endert 4185*, at ± 1500 m. alt.; Boekit Moang, *Jaheri 1003.*

The inflorescences and the long slender apex of the leaves suggest *Syzygium caudatilimbum* (Merr.) but this species is quite distinct in the different texture of the leaves (lacking the glands typical of the latter) and their close venation.

134. **Syzygium rhynchophyllum** (Merr.) comb. nov.

*Eugenia rhynchophylla* Merr. Jour. Str. Branch

Roy. As. Soc. **79**: 26. 1918, Enum. Born. Pl. 432. 1921.

Sarawak, near Kuching, *Haviland 2930* (type, fragm. Herb. Manila; isotype, Herb. Buitenzorg).

Known only from the type-collection.

This species is readily separable from *S. brachyrachis* Merr. & Perry, which it strongly resembles in foliar characters, by its small (2.5 mm. long) and obconical flower-buds.

135. **Syzygium subcrenatum** sp. nov.

Arbor glabra; ramis ramulisque brunneis, teretibus, ultimis 2 mm. diametro; foliis oppositis, coriaceis, ellipticis vel obovato-ellipticis, apice rotundatis vel abrupte obtuseque acuminatis, basi acutis vel paullo decurrenti-acuminatis, 8–10 cm. longis, 4–6 cm. latis, supra castaneis, nitidis, subtus paullo pallidioribus, opacis, vix glanduloso-punctatis, utrinque perspicue etsi tenuiter reticulatis, venis reticulisque paullo elevatis, venis primariis numerosis, utrinque circiter 20, in venam intramarginalem circiter 1 mm. a margine distantem confluentibus, margine distincte revoluto, obscure undulato-crenato; petiolo circiter 8 mm. longo; inflorescentiis terminalibus, pedunculatis vel sessilibus atque e basi ramosis, paniculatis verisimiliter multifloris, circiter 9 cm. longis, ramis oppositis, patulis vel subascendentibus, inferioribus ad 7 cm. longis, floribus sessilibus, in ramulis ultimis in triadibus dispositis, bracteis minutis, acutis, vix 0.5 mm. longis; fructibus globosis, 6 mm. diametro, calycis tubo cylindrico truncato 1 mm. longo et 1.5–2 mm. diametro coronatis.

Dutch Borneo, Pontianak, Danau Lamadgian, *Beccari 3390*, May, 1866 (type, Herb. Beccari, Florence); Beneden-Matan, Landjoet, *Schuitemaker 50* (*Boschproefstation bb: 14401*).

This species is well characterized by its vegetative characters, the slightly raised and rather close nerves and reticulations being conspicuous on both surfaces, and on the upper surface paler brown in contrast to the castaneous parenchyma; the leaf-margins are distinctly revolute and somewhat wavy crenate, the very shallow crenulations being irregular and rather distant. The type-specimen somewhat resembles *Syzygium prasiniflorum* (Ridl.) but the leaf-venation is totally different. The species closely answers King's description (which is more detailed than Duthie's) of *E. crenulata* Duthie except as to leaf-size and outline. The latter appears to be a rare species of which we have no material for comparison.

136. **Syzygium albidirameum** (Merr.) comb. nov.

*Eugenia albidiramea* Merr. Univ. Calif. Pub. Bot. **15**: 221. 1929.

British North Borneo, Tawao, *Elmer 21518, 21762* (type of *E. albidiramea* Merr., Herb. Univ. Calif.; isotypes at Herb. Arn. Arb., Gray and New York Bot. Gard.).

Known only from Borneo.

A species which very closely resembles *S. leucophloium* (*Jambosa cuneata* Blume) in the general aspect of the leaves and the branchlets but is, we suspect, quite different as to the fruit. The lack of flowers in *S. albidirameum* (Merr.) is a distinct handicap in bringing the species out in the key as well as in conjecturing what might be closely allied species. The fruit of *S. leucophloium* is unknown.

137. **Syzygium aphanomyrtoides** sp. nov.

Arbor parva, glabra; ramulis teretibus vel compressis, pallidis, circiter 1.5 mm. diametro; foliis ellipticis, 4.5–10 cm. longis, 2–4.5 cm. latis, basi acutis vel cuneatis, apice obtuse acuminatis, acumine 1–1.5 cm. longo angusto, novellis creberrime pellucido-punctatis, maturis copiose minutissimeque nigro-punctatis, costa supra impressa, subtus prominente, venis primariis circiter 8–10, patulis, vix arcuato-anastomosantibus ± 2–3 mm. a margine, venulis obscuris; petiolo 7–10 mm. longo, novello minute pustulato; inflorescentiis terminalibus axillaribusque, ± 3 cm. longis, ramosis, rachi ramisque 4-angulatis, ramulis vulgo trifloris; floribus sessilibus; alabastris 3.5–4 mm. longis, apice 1.5–2 mm. diametro, ± turbinatis, deorsum attenuatis, minute glandulosis; calycis limbo undulato; petalis cohaerentibus; staminibus circiter 9, brevibus; fructibus ignotis.

British North Borneo, Mount Kinabalu, Penibukan, *Clemens 31535* (type, Herb. Arn. Arb.), February 7, 1933, ridge west of camp at 1200–1500 m. alt.; Mount Nunkok, *Clemens 32009:* Dutch Borneo, Berouw, *Boschproefstation bb: 19152.*

A species suggesting *Aphanomyrtus* by its very small and glandular flowers with few stamens. Additional distinctive features are the whitish bark of the branchlets, and the copiously punctate or glandular and openly veined leaves with a conspicuous acumen.

138. **Syzygium borneense** Miq. Fl. Ind. Bat. **1** (1): 453. 1855; Walp. Ann. **4**: 835. 1857.

*Eugenia borneensis* Miq. Anal. Bot. Ind. **1**: 24. *t.* 7. 1850; Merr. Enum. Born. Pl. 426. 1921.

*Syzygium glaucescens* Blume ex Miq. l. c., in syn.

*Eugenia caryophyllaea* sensu Miq. Anal. Bot. Ind. **1**: 25. 1850; Merr. l. c. (as *caryophyllacea*), non Wight.

*Syzygium obtusatum* Blume ex Miq. l. c. in syn.

*Eugenia caryophyllaea* var. β. Miq. l. c.

*Syzygium caryophyllaeum* Gaertn. var. β. *obtusata* Miq. Fl. Ind. Bat. **1** (1): 454. 1855; Walp. Ann. **4**: 836. 1857.

*Eugenia microcalyx* Duthie in Hook. f. Fl. Brit. Ind. **2**: 493. 1878; King, Jour. As. Soc. Bengal, **70** (2): 124. 1901 (Mater. Fl. Malay. Pen. **3**: 554); Ridl. Fl. Malay Pen. **1**: 745. 1922.

*Eugenia microcalyx* var. *obovata* King, Jour. As. Soc. Bengal, **70** (2): 125. 1901 (Mater. Fl. Malay. Pen. **3**: 555); Ridl. l. c.

Sarawak, Mount Matang, *Clemens 22295;* Baram, *Hose 196:* Dutch Borneo, Goenoeng Pamatton, *Korthals s. n.* (type, Rijks Herb.); Martapoera, *Winkler 3388;* Doesson, *Korthals s. n.;* without definite locality, *Korthals s. n.;* Asem-Asem, Soengei Baroe, *Rasjid 4* (*Z. O. B. 2437*); Western Koetai, near Lahoem, *Endert 1884;* Pleihari, Djorong, *Dachlan 20* (*Boschproefstation bb: 14167*); Eastern Koetai, Goenoeng Leban, *Pohan* (*Boschproefstation bb: 14661*).

Distribution: Malay Peninsula.

The first five specimens above cited are a good match for the Malayan material, *King's collector 10733* and *10735* (cited in King, l. c. as *E. microcalyx* Duthie) determined as *E. microcalyx*, var. *obovata* King, also for a later collection from the same region determined as *E. microcalyx* Duthie. Ridley noted that King's variety is possibly a distinct species. Our material varies somewhat in the length of the inflorescence, but we do not believe it to be specifically different.

The last five collections above cited differ slightly from the others in being much more profusely puncticulate above and often copiously minute-glandular beneath. The leaves vary from lance- to obovate-elliptic. This is the entity assigned by Miquel to *E. caryophyllaea* Wight.

The synonym *Syzygium magnoliaefolium* Korth. (non DC.) was added by Miquel on the basis of a Bornean specimen so named; in reality *S. magnoliaefolium* DC. as published by Korthals was based on *Myrtus magnoliaefolia* Blume of Java, and recorded from Java and Sumatra. This is *Eugenia magnoliaefolia* (Blume) Koord. & Val. as figured in Atlas Baumart. Java, **3**: *f. 505*. 1915. The only available collections of this are from a tree cultivated in the Botanic Garden at Buitenzorg. It is certainly very closely allied to *S. borneense* Miq. differing particularly in that the leaves are acuminate at both the base and the apex.

139. **Syzygium litseaefolium** (Merr.) comb. nov.

*Eugenia litseaefolia* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 215. 1917, Enum. Born. Pl. 430. 1921.

Sarawak, without definite locality, *Native collector 260* (type, Herb. Manila; isotypes, Arn. Arb. and Rijks Herb.).

Known only from the type-collection, this species is most closely allied to *S. borneense* Miq. It is readily distinguished by the more elongate and epunctate leaves, the longer petioles, and the pale branches.

140. **Syzygium Korthalsianum** Miq. Fl. Ind. Bat. **1** (1): 454. 1855.

*Eugenia Korthalsiana* Miq. Anal. Bot. Ind. **1**: 25. 1850; Merr. Enum. Born. Pl. 429. 1921.

*Myrtus sessilis* Korth. ex. Miq. l. c., in syn.

*Syzygium sessile* Blume ex Miq. l. c., in syn.

*Syzygium subtile* Miq. Fl. Ind. Bat. Suppl. **1**: 313. 1861.

*Eugenia embelioides* Ridl. Jour. Bot. **68**: 36. 1930.

Sarawak, Danau Lamadgian, *Beccari 3354* (Herb. Kew, type of *E. embelioides* Ridl., not *3394* as cited by Ridley): Dutch Borneo, without definite locality, *Korthals s. n.* (type, Rijks Herb.); Semitau, *Mol 9* (*Boschproefstation bb: 17080*); Moeara Bojau, *Teysmann 8059;* Kapoeas, *Teysmann 8060;* Soengei Kenara, *Hallier 1388;* Poeloe Madjang, *Teysmann 7887, 7941.*

Distribution: Sumatra.

In general habit, pale branchlets, and dark (when dry) oblong-lanceolate leaves the species suggests *S. cinereum* Wall., but the leaves are smaller and the primary veins are much less remote.

*Syzygium subtile* Miq. as we interpret it from Teysmann's collection from Sumatra in the Gray Herbarium represents the same species.

141. **Syzygium roseomarginatum** (C. B. Rob.) comb. nov.

*Eugenia roseomarginata* C. B. Rob. Philip. Jour. Sci. **4**: 390. 1909; Merr. Enum. Philip. Pl. **3**: 175. 1923.

British North Borneo, Mallawalle Island, *Kloss 19257.*

Distribution: Philippines.

This material is an exact match for *Elmer 12775, 13068* (distributed as *E. mindorensis* C. B. Rob. which it is not) from the Island of Palawan. Although the leaves tend to be a little larger, and the inflorescence a little more open than in the isotype of Robinson's species from northern Luzon, with the material at hand we cannot differentiate specifically between them.

A collection with a very close affinity to, if not, this species is *Dachlan 2373*, Goenoeng Poetih, Martapoera, Dutch Borneo. It differs in that the upper surface of the leaves is punctate and the flowers are slightly larger than those in *Kloss 19257* and perhaps hardly as narrow at the base.

142. **Syzygium chrysanthum** sp. nov.

Frutex vel arbor ad 7.5 m. alta; ramulis compressis vel obtuse angulatis, albidis, circiter 2 mm. diametro; foliis chartaceis, obovato-ellipticis vel ellipticis, 9–18 cm. longis, 3–7 cm. latis, apice abrupte obtuseque acuminatis, acumine ± 1 cm. longo, basi cuneato-acuminatis, supra brunneis, subtus pallidioribus, copiose minuteque pellucido-punctatis; costa venisque primariis supra impressis, subtus prominulis, venulis laxe reticulatis, obscurioribus; petiolo 5–7 mm. longo; inflorescentiis terminalibus, interdum axillaribus, ± 3.5 cm. longis, e basi ramosis; rachi ramisque gracilibus, minute pustulatis; alabastris oblongis, sessilibus, circiter 2.5 mm. longis; calycis lobis minutis; fructibus subglobosis vel transverse oblongis, ± 4 mm. diametro.

British North Borneo, Kinabatangan, *Maidin* (*B. N. B. For. Dept. 1746*, type, Herb. Arn. Arb.), *Evangelista 992;* Sibugal River, *Agullana 3888;* Sandakan, *Apostol* (*B. N. B. For. Dept. 3902*); Payao River, *Allen 627;* Tawao, *Elmer 20932, 21232.*

*Syzygium chrysanthum* recalls *S. albidirameum* (Merr.) in the pale bark of the branchlets as well as in the venation and the punctation of the leaves, but their texture is distinctly chartaceous rather than coriaceous, also the small and smooth subglobose fruits are very different from the larger pyriform reticulate-rugose ones of the latter species.

143. **Syzygium stictophyllum** sp. nov.

Arbor circiter 15 m. alta; ramulis ultimis compressis, 1–2 mm. diametro, pallidis vel gilvis; foliis ellipticis, 6–10 cm. longis, 3–4.5 cm. latis, utrinque angustatis, basi anguste cuneatis, apice acuminatis, acumine ± 1 cm. longo, lamina pellucido-punctata, supra creberrime puncticulata, subtus copiose glandulis nigris minutisque maculata, costa supra canaliculata subtus prominula, venis primariis utrinque 7–10, patulis vel subtransversis arcuato-anastomosantibus 2–4 mm. a margine; petiolo ± 1 cm. longo gracili; inflorescentiis usque ad 6 cm. longis, axillaribus terminalibusque, rachi ramisque obtuse angulatis; floribus sessilibus; calyce turbinato, vix 3 mm. longo, margine dentato vel undulato, basi stipitato, circiter 1.5 mm. longo; fructibus ignotis.

British North Borneo, Mount Kinabalu, Penibukan, *Clemens 50344* (type, Herb. Arn. Arb.), November 13, 1933, at about 1650 m. alt.; Tenompok, *Clemens 26743*, at about 1500 m. alt.: Dutch Borneo, Boeloengan, Mara, *Zwaan 31* (*Boschproefstation bb: 10780*).

The species suggests *S. rhynchophyllum* (Merr.) as to the foliar characters, although the primary veins are more manifest in this species; nevertheless, they are easily distinguished from each other by the inflorescence. In *S. stictophyllum* the inflorescence is open and up to 6 cm. long, with flowers somewhat abruptly narrowed below the calyx-limb; whereas, in *S. rhynchophyllum* (Merr.) the flower-clusters are closely compact and scarcely more than 1 cm. long, the buds are about 2.5 mm. long, gradually narrowed toward the base.

144. **Syzygium Treubii** sp. nov.

Arbor glabra, 15–20 m. alta; ramulis teretibus vel leviter compressis, cinereis vel fuscis, circiter 2 mm. diametro; foliis oppositis vel suboppositis, ellipticis vel late lanceolatis, utrinque angustatis, basi acutis, apice obtusiusculis, 9–15 cm. longis, 3–6 cm. latis, minute consperseque punctatis, supra viridibus, subtus pallidis, costa supra impressa, subtus ad basin prominula, venis primariis supra manifestis, subtus subelevatis, 12–18, oblique patulis, inter se 7–12 mm. distantibus, circiter 3 mm. a margine paullo arcuato-anastomosantibus, venulis inconspicuis; petiolo ± 1 cm. longo; inflorescentibus terminalibus, ± 10 cm. longis, axillaribus brevioribus, rachi ramisque compressis vel leviter 4-angulatis, ramulis ultimis plerumque trifloris, floribus sessilibus; calycis tubo elongato-obconico, 2 mm. longo, obscure 4-dentato vel undulato; petalis calyptratim deciduis; staminibus brevibus; fructibus late globoso-urceolatis, ± 5 mm. altis, ± 6 mm. diametro, cotyledonibus verisimiliter corrugatis.

Dutch Borneo, Western Koetai, near Long Poehoes, *Endert 2458* (type, Herb. Buitenzorg), *4864*, August 8 and November 14, 1925, at about 80 m. alt.

Although this species suggests *E. corymbifera* Koord. & Val. in the description of the leaves and the corrugated cotyledons (the cotyledons in *S. Treubii*

at least are creased radially and irregularly, the inner faces somewhat interlocking with a long hypocotyl between), the flowers are much too small for that species; the leaf-venation also suggests *E. Klossii* Ridley, but here too, the flowers do not coincide with the description.

145. **Syzygium Slootenii** sp. nov.

Arbor (?); ramulis compressis, ± sulcatis, brunneis, circiter 2 mm. diametro; foliis ellipticis, utrinque subaequaliter angustatis, 7–14 cm. longis, 2.5–5.5 cm. latis, basi rotundato-cueatis vel lato-acuminatis, apice abrupte obtuseque acuminatis, acumine 1–1.5 cm. longo, coriaceis, supra puncticulatis, subtus vix glanduloso-punctatis, costa supra canaliculata subtus rotundata vel subcarinata, venis primariis utrinque circiter 20, inconspicuis, venis secondariis obscuris, vena submarginali circiter 1 mm. a margine remota; petiolo ± 1 cm. longo; inflorescentiis terminalibus, ± 5 cm. longis, ramosis, ramis 2 mm. diametro, ultimis multifloris; alabastris sessilibus, 3–3.5 mm. longis obovoideis; calycis limbo undulato.

Dutch Borneo, Western Koetai, near Kemoel, *Endert 3592*, at ± 1200 m. alt.: Sumatra, Bandar Poeloeh, Asahan, *Yates 1612* (type, Herb. Arn. Arb.; isotype, Herb. New York Bot. Gard.), *2578*.

*Syzygium Slootenii* is very like *S. Havilandii* (Merr.) in general habit; nevertheless, it is easily separated by the more remote veins of the leaves, and the much stouter rachis and branches of the inflorescence. Unfortunately all our specimens show the inflorescence only in a fairly immature state, but the numerous buds clustered at the tips of the rather stout branches distinguish these collections from any other we have seen with corresponding foliar characters.

146. **Syzygium Havilandii** (Merr.) comb. nov.

*Eugenia Havilandii* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 222. 1917, Enum. Born. Pl. 428. 1921.

Sarawak, Rock Road, *Native collector 814* (type, Herb. Manila; isotypes, Herb. Arn. Arb., Rijks); without definite locality, *Sarawak Museum 64*.

Not reported from elsewhere.

As already pointed out by Merrill, the species is allied to *S. inophyllum* DC. but it has distinctly smaller flowers and the leaf-venation is much less obvious.

147. **Syzygium pachysepalum** sp. nov.

Arbor glabra, 12–20 m. alta; ramulis teretibus vel compressis, brunneis, 2–3 mm. diametro; foliis rigide coriaceis, ellipticis, 5.5–9 cm. longis, 3.5–5 cm. latis, basi cuneatis vel rotundato-cuneatis, apice obtuse acuminatis, saepe recurvatis, acumine ± 1 cm. longo, supra olivaceo-brunneis, subtus pallidioribus, copiose minuteque glandulosis, crebre leviterque penninerviis, costa supra impressa, subtus subcarinata, vena intramarginali prominula, ± 1 mm. a margine distante; petiolo circiter 1 cm. longo, ruguloso; inflorescentiis plerumque terminalibus, ± 4 cm. longis, fere a basi ramosis, rachi ramisque tetraquetris, ramulis ultimis vix 3 mm. longis, crassis; alabastris omnibus sessilibus, circiter 3 mm. longis, obovoideis, in apice ramulorum dense confertis; calycis lobis crassis, medio dorso costulatis; fructibus subglobosis, ± 7 mm. diametro, calycis brevissimo tubo lobisque coronatis.

British North Borneo, Mount Kinabalu, Colombon Basin, *Clemens 34385* (type, Herb. Arn. Arb.; isotypes at Buitenzorg, New York and Rijks Herb.), August 11, 1933, at about 1350 m. alt.; Colombon River, *Clemens 33824*, June 30, 1933, at about 2250 m. alt.

This species in its compact clusters of flowers at the tips of the branches of the infloresence suggests *S. punctilimbum* (Merr.), but the leaves are very different in outline. No other Bornean species of *Syzygium* has calyx-lobes quite like this. Unfortunately the flowers are only in bud, but both here and in the fruit the calyx-lobes are thickened along the middle, the dorsal part being distinctly convex. The leaves in their close venation and texture suggest *S. myrtilloides* Merr. & Perry, but they rarely are flat when pressed, owing to the recurving tips, a character not manifest in the latter species.

148. **Syzygium leucoxylon** Korth. Nederl. Kruidk. Arch. **1**: 203. 1847; Walp. Ann. **2**: 630. 1851–52; Miq. Fl. Ind. Bat. **1** (1): 454. 1855.

*Eugenia leucoxylon* Miq. Anal. Bot. Ind. **1**: 26, *t. 9*. 1850; Merr. Enum. Born. Pl. 430. 1921.

*Myrtus leucoxylon* Korth. ex Miq. l. c. in syn.

*Syzygium verecundum* Wall. List, no. 3579. 1831, *nomen*.

*Eugenia verecunda* Duthie in Hook. f. Fl. Brit. Ind. **2**: 496. 1878; King, Jour. As. Soc. Bengal, **70** (2): 125. 1901 (Mater. Fl. Malay. Pen. **3**: 555); Ridl. Fl. Malay Pen. **1**: 748. 1922, Jour. Bot. **68**: 35. 1930.

*Eugenia brevistylis* C. B. Rob. Philip. Jour. Sci. Bot. **6**: 347. 1911.

British North Borneo, Banguey Island, *Castro & Melegrito 1493;* Batu Payong, *Mail* (*B. N. B. For. Dept. 2717*): Sarawak, Tandgion Datu, *Beccari 3546;*

Sibu, near the sea, *Beccari 1761:* Dutch Borneo, Goenoeng Pamatton, *Korthals* (type, Rijks Herb.); Palo, *Becking 39;* Tanahboemboe, Goenoeng Mangis, north of Batoelitjin, *v. Slooten 2170, 2171;* Palawangan, near Riam Kanan, *Ramli 2043.*

Distribution: Malay Peninsula and the Philippines.

Korthals' type is closely matched by *Castro* and *Melegrito 1493* from Banguey Island which Merrill recorded as doubtfully representing *Eugenia halophila* Merr. The Philippine *Eugenia halophila* differs in having lateral inflorescences.

The only tangible difference we see between *Eugenia verecunda* Duthie, at least as to plants cited by Ridley (*Beccari 1761, 3546*), and *S. leucoxylon* Korth. is that the reticulations between the primary veins are perhaps a little more noticeable in the first; this is surely not a specific distinction, and, since Duthie's description seems to conform to our material, we find it necessary to take up the first validly published name, *S. leucoxylon* Korth. The species is closely allied to *S. Alcinae* (Merr.) but it differs primarily in the shallow calyx-limb and the very short, rarely exserted, style.

148A. **Syzygium leucoxylon,** var. **phaeophyllum** var. nov.

Ramis ramulisque cinereo-brunneis vel fuscis; foliis siccatis olivaceo-brunneis, venis venulisque undique prominulentibus.

British North Borneo, Kimanis, *Tandom* (*B. N. B. For. Dept. 3316,* type, Herb. Arn. Arb.); Mount Kinabalu, West Marai Parai, *Clemens 32495:* Sarawak, without locality, *Native collector 1967:* Dutch Borneo, Boeloengan, Salimbatoe, Soengei Raewah, *Zwaan 157* (*Boschproefstation bb: 11209*).

The above citations are sufficiently different to be worthy of note. Although none of the specimens show more than immature buds, the color of the bark of the branchlets is much darker than in our specimens of *S. leucoxylon* Korth. and the dried leaves are distinctly brownish (in *S. leucoxylon,* yellowish green), the venation is also more distinct on the lower surface. *Clemens 32495* shows both axillary and terminal inflorescence and the reticulations are fewer than in other specimens cited.

149. **Syzygium Alcinae** (Merr.) comb. nov.

*Eugenia Alcinae* Merr. Philip. Jour. Sci. Bot. **10**: 216. 1915, **13**: 98. 1918, Jour. Str. Branch Roy. As. Soc. **79**: 22. 1918, Enum. Born. Pl. 425. 1921, Enum. Philip. Pl. **3**: 157. 1923, Philip. Jour. Sci. Bot. **29**: 407. 1926, Univ. Calif. Pub. Bot. **15**: 216. 1929.

British North Borneo, without definite locality, *Villamil 371, Wood 1735, 1900;* Balambangan Island, *Kloss 19266;* Tawao, *Elmer 21207;* Sandakan, *Yates 9, Ramos 1138, Wood 896, Puasa 665;* Puron, *Goklin 832;* Mount Kinabalu, margin of Tuaran Estate, *Clemens 28549,* at 30–60 m. alt.; Kampong Menumbok, Mempakul, *Goklin* (*B. N. B. For. Dept. 1968*): Sarawak, Brooketon, *Haviland 518.*

Distribution: Philippines.

In general habit *Syzygium Alcinae* (Merr.) and *S. leucoxylon* Korth. are very much alike; technically, the former differs in having a longer calyx-limb, an exserted style, and the leaves casually reticulate; it is closely associated with *E. perpallida* Merr.

150. **Syzygium nigricans** (King) comb. nov.

*Eugenia nigricans* King, Jour. As. Soc. Bengal, **70** (2): 114. 1901 (Mater. Fl. Malay. Pen. **3**: 544); Ridley, Fl. Malay Pen. **1**: 751. 1922.

Dutch Borneo, Ben. Dajak, Troesan, *van Tuil 3* (*Boschproefstation bb: 11600*).

Distribution: Malay Peninsula.

The leaves are within the range of size given in King's description, but more elliptic than oblong and smaller than those of the only specimen we have from the Malay Peninsula representing King's species; however, the venation is very similar, being more obvious on the upper surface than on the lower one; the inflorescence also agrees fairly well with the description of that of *E. nigricans* King.

151. **Syzygium prasiniflorum** (Ridl.) comb. nov.

*Eugenia prasiniflora* Ridl. Jour. Bot. **68**: 35. 1930.

Sarawak, near Kuching, *Haviland 2109/1622, Haviland & Hose 3381;* Niah, *Haviland & Hose 3127A:* Dutch Borneo, Soengei Kenepai, *Hallier 1993;* without definite locality, *Jaheri 41.*

Known only from Borneo.

A species closely approximating *Syzygium Havilandii* (Merr.) in leaf-venation but differing in the smaller flowers and the 4-angled branchlets. The leaves of *Jaheri 41* are acuminate and tend to be rounded-cuneate at the base; possibly it is not conspecific. We have no other collection which exactly matches it.

152. **Syzygium punctilimbum** (Merr.) comb. nov.

*Eugenia punctilimba* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 217. 1917, Enum. Born. Pl. 432. 1921.

*Eugenia Andersonii* Ridl. Jour. Bot. **68**: 36. 1930.

British North Borneo, Mount Kinabalu, Marai Parai Spur, *Clemens 10888* (type of *E. punctilimba* Herb. Manila; isotype, Herb. Arn. Arb.); Colombon River, *Clemens 33668, 34088:* Sarawak, without definite locality, *Native collector 2614;* Mount Poi, *Clemens 20375;* Goenoeng Rumput, *Anderson 183* (type of *E. Andersonii* Ridl., Herb. Kew); Santubong, *Beccari 2136.*

Reported only from Borneo.

Merrill examined the type of *E. Andersonii* Ridl. in 1930 and could not distinguish it from the above species. Goenoeng Rumput, the type-locality of the former is one of the peaks of Mount Poi where *Clemens 20375* was collected.

153. **Syzygium nigropunctatum** sp. nov.

Glabra; ramis teretibus fulvis, ramulis ultimis gracilibus, obtuse angulatis vel sulcatis, glandulosopustulatis, 1–2 mm. diametro; foliis obovatis vel ellipticis, 1.7–3(–5) cm. longis, 1–2 cm. latis, basi cuneatis, apice rotundatis vel obtusis vel subacutis, coriaceis, supra olivaceo-viridibus, subtus badiis, utrinque crebre minuteque nigropunctatis, costa supra impressa, subtus prominula, venis primariis, ±2 mm. remotis, supra submanifestis, subtus obscuris; petiolo 3–5 mm. longo; inflorescentiis plerumque terminalibus, ad 6 cm. longis, vulgo a basi ramosis vel pedunculo communi ± 1 cm. longo insidentibus, ramis ± 3 cm. longis; floribus sessilibus; calycis lobis vix 0.4 mm. longis, obtusis; fructibus novellis urceolatis, circiter 3.5 mm. longis, 4 mm. latis, minute pustulatis.

Dutch Borneo, Sintang, *Teysmann 8219* (type, Herb. Buitenzorg; isotype, Rijks Herb.); Pontianak, Soengei Poetat, *Mondi 72.*

This species is closely related to *S. avene* Miq. but in the latter the leaves are 4–7.5 cm. long. We also suspect from the habit of the specimens that this is a shrub rather than a tree. In *Mondi 72* the branchlets are strongly 4-angled and the leaves are obtuse or with a short obtuse acumen. *Teysmann 7885*, Sintang, is closely allied but we are inclined to believe it is a distinct species. The specimens are insufficient for the basis of a new species.

154. **Syzygium Hackenbergii** Diels, Bot. Jahrb. **60**: 312. 1926.

Dutch Borneo, Sampit, *Hackenberg 17* (type, Berlin Bot. Gard. Herb.; fragm.).

Known only from the type-collection.

We have no material identical with this type which as Dr. L. Diels says, recalls *S. caryophyllaeum* Gaertn., but is distinct by the stouter branches of the inflorescence and the larger flowers. The leaves strongly suggest *S. incarnatum* (Elmer) but they are more copiously punctate above and the dried flowers are distinctly shining; in *S. incarnatum* (Elmer) the flowers are dull and narrower at the base.

155. **Syzygium incarnatum** (Elmer) comb. nov.

*Eugenia incarnata* Elmer, Leafl. Philip. Bot. **4**: 1416. 1912; Merr. Enum. Philip. Pl. **3**: 167. 1923; Kew Bull. **1933**: 493. 1933.

*Syzygium punctulatum* Wall. List, no. 3583. 1831, *nomen.*

*Eugenia punctulata* King, Jour. As. Soc. Bengal. **70** (2): 122. 1901 (Mater. Fl. Malay. Pen. **3**: 552); Merr. Enum. Born. Pl. 432. 1921; Ridl. Fl. Malay Pen. **1**: 747. 1922, Jour. Bot. **68**: 35. 1930, non F. M. Bailey (1896).

British North Borneo, Pasir Tinggi, Weston, *Suleiman (B. N. B. For. Dept. 2179), Wood 1222;* Kimanis, *Tandom (B.N.B.For. Dept. 3373)*; Sandakan, *Villamil 131;* Soengei Damit, *Hassan 735;* Sarawak, Mount Sengghai, *Native collector 5302;* Danau Lamadgian, *Beccari 3465;* near Kuching, *Haviland 810, Native collector 2179:* Dutch Borneo, Kapoeas, *Teysmann 8068;* Soengei Smittouw, *Hallier 1268;* Soengei Kenepai, *Hallier 2203;* Soengei Rikai, *Hallier 1309;* Sampit, Soengei Pemoelian, *Delmaar bb: 2084;* without definite locality, *Jaheri s. n.*

Distribution: Malay Peninsula and Palawan.

A widespread and somewhat variable but readily recognized species. In some of the specimens of *Haviland 810* the leaves are as long as 14 cm., in others as small as 3 cm. long. Apart from this unusual variation in leaf-size, the collection compares favorably with the other material above cited.

From the description, *Jambosa puncticulata* Miq. Fl. Ind. Bat. Suppl. 310. 1862, erroneously cited by King as *punctulata* and placed as a synonym of *E. punctulata* King, does not represent this species.

156. **Syzygium petrophilum** sp. nov.

Arbor parva 4–9 m. alta; ramulis compressis, vix 2 mm. diametro, atro-brunneis; foliis oblongis vel oblongo-ellipticis, 3–6 cm. longis, 1.5–2.5 cm. latis, margine revolutis, utrinque subobtusis, vel apice brevissime obtuseque acuminatis, basi late cuneatis, rigidis, coriaceis, supra obscure puncticulatis, subtus minutissime nigro-glandulosis, venis primariis secun-

dariisque fere pari gradu supra manifestis, subtus prominulis, interdum anastomosantibus, in venam intramarginalem 1 mm. a margine confluentibus; petiolo 5–7 mm. longo, nigrescente; inflorescentiis axillaribus, 2.5–5 cm. longis, pauciramosis; alabastris obconico-turbinatis, circiter 3 mm. longis, apice 2 mm. latis, sessilibus; calycis tubo undulato vel lobis minutis terminato; staminibus circiter 10, brevibus; fructibus ignotis.

British North Borneo, Mount Kinabalu, Colombon Basin, *Clemens 40082* (type, Herb. Arn. Arb.; isotypes at Herb. Buitenzorg, New York Bot. Gard. and Rijks), August 18, 1933, at about 1500 m. alt.; Penataran Basin, *Clemens 40145*, August 31, 1933, at about 1800 m. alt.

In foliar characters *S. petrophilum* is much like *S. Myrtillus* (Stapf) but the inflorescences are chiefly axillary, the calyx ± undulate, and the stamens few; whereas, in *S. Myrtillus* (Stapf), the inflorescence is chiefly terminal, the calyx is definitely lobed, and the stamens are many.

### Little Known and Excluded Species

*Eugenia acuminatissima* Kurz, Rep. Pegu, App. A. lxiii. 1875; Ridl. Jour. Bot. **68**: 34. 1930 = **Acmena acuminatissima** (Blume) Merr. & Perry, Jour. Arn. Arb. **19**: 12. 1938.

**Syzygium aromaticum** (Linn.) comb. nov.

*Caryophyllus aromaticus* Linn. Sp. Pl. 735. 1753; DC. Prodr. **3**: 262. 1828; Miq. Fl. Ind. Bat. **1** (1): 462. 1855.

*Eugenia caryophyllata* Thunb. Diss. 1. 1788; Koord. & Val. Meded. Lands Plant. **40**: 101. 1900 (Bijdr. Boomsoort. Java, **6**: 101), Atlas Baumart. Java, **3**: *f. 478*. 1915.

*Myrtus Caryophyllus* Spreng. Syst. **2**: 485. 1825.

In the undetermined material from the Rijks Herbarium is a specimen bearing the label: Borneo ? Herb. Korthals. We are inclined to believe the specimen was collected elsewhere; we have no other evidence that the species occurs in Borneo, although it is entirely probable that this, the commercial clove tree, has been introduced into cultivation in Borneo.

*Eugenia barringtonioides* Ridl. Jour. Bot. **68**: 12. 1930 = **Cleistocalyx barringtonioides** (Ridl.) Merr. & Perry, Jour. Arn. Arb. **18**: 332. 1937.

*Eugenia Cleistocalyx* Merr. Philip. Jour. Sci. Bot. **13**: 98. 1918, Enum. Born. Pl. 427. 1921 = **Cleistocalyx nitidus** Blume, Mus. Bot. Lugd.-Bat. **1**: 84. 1849.

*Eugenia cymosa* Lam. Encycl. **3**: 199. 1789.

A discussion of the identity of this species will be found under *Syzygium syzygioides* (Miq.) Merr. & Perry. It is a native of Mauritius, and is to be excluded from the Bornean and Malayan records.

*Syzygium conicum* Korth. Nederl. Kruidk. Arch. **1**: 204. 1847.

The type of this species was not found in 1930 by Merrill at the Rijks Herbarium. In the absence of the type the description is not sufficiently adequate for identification.

*Syzygium Cumingianum* Gibbs, Jour. Linn. Soc. Bot. **42**: 76. 1914 = **Acmena acuminatissima** (Blume) Merr. & Perry, Jour. Arn. Arb. **19**: 12. 1938.

*Eugenia formosa* Wall. Pl. As. Rar. **2**: 6, *t. 108*. 1831.

This species has been reported from Borneo on the basis of Korthals' *Jambosa mappacea*. We do not believe they are identical, hence *E. formosa* Wall. should be excluded from the Bornean list.

*Jambosa glandulosa* Korth. Nederl. Kruidk. Arch. **1**: 201. 1847.

Miquel, Fl. Ind. Bat. **1** (1): 483. 1855, excluded this species from the tribe Myrteae on account of the biglandular character attributed to the leaves. We are wholly in agreement with this. Merrill was unable to locate the type at the Rijks Herbarium in 1930, even searching for it under *Parinarium*.

*Eugenia johorensis* Ridl. Jour. Str. Branch Roy. As. Soc. **61**: 8. 1912, Fl. Malay Pen. **1**: 725. 1922.

This species has not been found in Borneo.

*Eugenia johorensis* Ridl. Fl. Malay Pen. **5**: 308. 1925, Jour. Bot. **68**: 34. 1930 = **S. rugosum** Korth.

**Syzygium lancifolium** (Miq.) comb. nov.

*Jambosa lancifolia* Miq. Fl. Ind. Bat. **1** (1): 427. 1855, pro parte, non *Eugenia lancifolia* Miq. Anal. Bot. Ind. **1**: 17. 1850.

*Jambosa insignis* Blume, Mus. Bot. Lugd.-Bat. **1**: 100. 1849, pro parte.

*Eugenia Munroii* Miq. Anal. Bot. Ind. **1**: 18. 1850, non *Eugenia Munronii* Wight.

Dutch Borneo, without locality, *Korthals s. n.*

This is a very fragmentary specimen of the tip of a branchlet showing three nodes, the terminal one of which has two attached leaves, of these the larger one is about 24 cm. long and nearly 5.5 cm. broad, minutely glandular-puncticulate on the lower surface, with ± 16 primary veins on either side of the midrib. There is also a separate leaf on the sheet and a short

branchlet without leaves; at each of the nodes on this is a very short rachis (± 2 mm.) at the apex of which is either a branch of the inflorescence or a pedicel (4–5 mm. long) of a flower. This is not sufficient data for us to locate the species except as one of a variable group. In view of the scanty specimen and the fact that we have been unable to match it, we are leaving it in the little known species.

*Jambosa nitida* Korth. Nederl. Kruidk. Arch. **1**: 202. 1847 = **Cleistocalyx nitidus** Blume.

*Eugenia operculata* Roxb. Fl. Ind. ed. 2, **2**: 486. 1832; Merr. Jour. Str. Branch Roy. As. Soc. **77**: 224. 1917, **79**: 21. 1918, Enum. Born. Pl. 431. 1921 = **Cleistocalyx operculatus** (Roxb.) Merr. & Perry, Jour. Arn. Arb. **18**: 337. 1937.

*Syzygium ovale* Korth. Nederl. Kruidk. Arch. **1**: 205. 1847.

Merrill did not find the type of this species in the Rijks Herbarium in 1930, nor have we found any collections that match the very meagre original description.

*Eugenia paradoxa* Merr. Jour. Str. Branch Roy. As. Soc. **77**: 210. 1917, Enum. Born. Pl. 432. 1921 = **Cleistocalyx paradoxus** (Merr.) Merr. & Perry, Jour. Arn. Arb. **18**: 331. 1937.

*Eugenia perspicuinervia* Merr. Univ. Calif. Pub. Bot. **15**: 218. 1929 = **Cleistocalyx perspicuinervius** (Merr.) Merr. & Perry, Jour. Arn. Arb. **18**: 332. 1937.

*Jambosa pterocaulis* Korthals, Nederl. Kruidk. Arch. **1**: 200. 1847 = **Memecylon appendiculatum** Blume, Mus. Bot. Lugd.-Bat. **1**: 361. 1851.

*Eugenia pterocaulis* Miq. Anal. Bot. Ind. **1**: 18. 1850 = **Memecylon appendiculatum** Blume, l. c.

*Eugenia saligna* (Miq.) C. B. Rob. Philip. Jour. Sci. Bot. **4**: 392. 1909, quoad syn. Miq.; Merr. Enum. Born. Pl. 433. 1921.

*Jambosa saligna* Miq. Fl. Ind. Bat. **1** (1): 432. 1855.

Miquel's species was based on a Javan specimen, and as Ridley notes, Jour. Bot. **68**: 34. 1930, it represents a species in the group with *Eugenia zeylanica* Wight, i. e. *Syzygium zeylanicum* (L.) DC., and has nothing to do with *E. acuminatissima* Kurz. Koorders & Valeton, Meded. Lands Plant. **40**: 155. 1900 (Bijdr. Boomsoort. Java, **6**: 155), made the original reduction of Miquel's species to *Eugenia acuminatissima* Kurz with certainty, as indicated by the exclamation mark added after *Jambosa saligna* Miq.; this is an error. In 1930 Merrill examined the type, Herb. Utrecht. It is a very poor specimen collected in Java by Junghuhn, and an equally poor duplicate is in the Rijks Herbarium. The leaves are prominently glandular-punctate beneath, and in size and shape approximate those of *Myrtus acuminatissima* Blume; the flowers are totally different from those of the latter, the two not being closely allied. Merrill has been unable to refer any other described Javan species to *Eugenia saligna* and was not able to match the type by any Javan or extra-Javan material. *Eugenia saligna* Becc. Nelle foreste di Borneo 402. 1902 is a *nomen nudum*.

*Eugenia subrufa* sensu Ridl. Jour. Bot. **68**: 15. 1930, non King = **Cleistocalyx leucocladus** Merr. & Perry, Jour. Arn. Arb. **18**: 336. 1937.

*Syzygium tenellum* Blume ex Miq. Anal. Bot. Ind. **1**: 27. 1850, Fl. Ind. Bat. **1** (1): 456. 1855; Walp. Ann. **4**: 836. 1857; Merr. Enum. Born. Pl. 434. 1921.

This species was based on a sterile specimen and was most inadequately described. There is a single detached leaf in the Utrecht Herbarium but Merrill failed to locate the original collection in the Rijks Herbarium.

*Syzygium tesselatum* Korth. Nederl. Kruidk. Arch. **1**: 203. 1847; Miq. Anal. Bot. Ind. **1**: 28. 1850; Walp. Ann. **2**: 630. 1851–52; Miq. Fl. Ind. Bat. **1** (1): 482. 1855; Merr. Enum. Born. Pl. 434. 1921.

Miquel in 1855, and Merrill again in 1930, failed to locate this type at the Rijks Herbarium. The description is too indefinite to be of any value in determinative work.

*Syzygium umbellatum* Korth. Nederl. Kruidk. Arch. **1**: 205. 1847; Merr. Enum. Born. Pl. 434. 1921.

This was described from a Sumatran specimen, the "Borneo" record being due to Miquel's error, Fl. Ind. Bat. **1** (1): 483. 1855, in transcribing Borneo for Sumatra. Merrill did not find the type in the Rijks Herbarium. The original diagnosis is totally inadequate.

In addition to the above, the following species have also been attributed to Borneo: *E. Bernardi* King (*E. inophylla* var. *Bernardi* Ridl.), *E. caryophyllaea* Wight, *E. chloroleuca* King, *E. corymbifera* Koord. & Val., *E. Duthieana* King, *E. Klossii* Ridl., *E. laevicaulis* Duthie and *E. Scortechinii* var. *parvifolia* King. Except for *E. Bernardi* King about which we do not know, we have had access to the material upon which these records were based, and, as we interpret these species, all are erroneous determinations.

Owing to the difficulty we have found in determining species from descriptions based on foliar specimens, we have deliberately omitted several new species in the *reliquiae* rather than describe them from foliar or fragmentary material. The similarity between leaves of related groups of species and often of unrelated ones is such that foliar descriptions may be very misleading.

Included in our Bornean loan are the following species from the Karimata Islands:

(The new combinations and new names here listed appear earlier in this paper.)

**Syzygium pycnanthum** Merr. & Perry.

Karimata N. W., *Teysmann 11531.*

**Syzygium perparvifolium** (Merr.) Merr. & Perry.

Poeloe Seroetoe, *Mondi 160;* Mount Djoeng Djoeng, Goelang, *Teysmann s. n.*

We are placing these collections provisionally in this species. They differ in that the leaves are not shining, the base is rounded to emarginate, and the bracts of the inflorescence are longer and somewhat more flattened than in *S. perparvifolium.* The collections also differ from our specimens of *S. bankense* (Hassk.) in having much shorter and broader leaves, an inflorescence which shows no tendency to elongate, and flowers practically without a pseudostipe. Owing to the complexity of this group of species and their inadequate representation in our collections, it seems preferable at present not to describe the Karimata specimens as new.

**Syzygium karimatense** sp. nov.

Rami teretes, cinerei; ramulis tetragonis, gracilibus, virescentibus, circiter 0.7 mm. diametro; foliis 2–3 cm. longis, 1–1.8 cm. latis, oblongo-ellipticis, apice rotundatis vel obtusis, basi cuneatis, supra satis punctatis, haud pellucidis, costa supra canaliculata, subtus prominula, venis primariis ± 3 mm. remotis, supra obscuris, subtus manifestis, venis secondariis fere pari gradu ac primariis manifestis, vena intramarginali circiter 1 mm. a margine remota, venulis laxe reticulatis vel subobscuris; petiolo circiter 2 mm. longo; inflorescentiis terminalibus axillaribusque ad 1.5 cm. longis, e basi ramosis, ramis paucis, brevibus (1–2 mm. longis); floribus sessilibus; calycis tubo circiter 8 mm. longo, apice 2 mm. diametro, lobis parvis deciduis.

Karimata, Mount Djoeng Djoeng, *Teysmann s. n.* (type, Herb. Buitenzorg).

The general habit of this species suggests *S. nigropunctatum* Merr. & Perry of Borneo or *S. oliganthum* Thw. of Ceylon, but the inflorescence in neither is comparable to this. The long, slender, clavate calyx-tube and the short clustered inflorescence suggests some relationship with *S. leptanthum* (Wight) Ndz. but the leaves are very different both in size and in outline. In fact the species is so unlike any other we have seen that, in spite of its somewhat fragmentary condition (the flowers are past anthesis, the corolla, the stamens, and most of the calyx-lobes have already fallen), we are describing it as new.

**Syzygium javanicum** Miq.

Poeloe Seroetoe, *Mondi 179, Teysmann s. n.;* Poeloe Boeroeng, *Mondi 227.*

**Syzygium borneense** Miq.

Mount Djoeng Djoeng, *Teysmann s. n.*

Two other collections are too fragmentary for determination. One collected by *Teysmann* suggests the *subdecussata* group of species; the other, *Mondi 172* from Poeloe Seroetoe, shows fruit and very immature flowers. We have also seen poor specimens of this from Borneo which suggest that *S. palembanicum* Miq. or a closely related species might be represented but better material is needed for more nearly accurate determinations.

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