

THE GENUS BURBIDGEA

R. M. SMITH

ABSTRACT. The genus *Burbidgea* Hook. f. (Zingiberaceae) is revised. Six species, all from Borneo, are recognised; one, *B. longilora* (Ridl.) Smith is transferred from *Alpinia*. The affinities of the genus are discussed and it is suggested that its nearest ally is the Papuan *Riedelia*.

INTRODUCTION

Five species of *Burbidgea* have been described hitherto, no less than three based on cultivated material only, and none has been recorded from outside Borneo. The distribution pattern (fig. 3) is in fact closely similar to that of the acanthaceous *Cosmianthemum* (see Burtt & Smith in Notes R.B.G. Edinb. 26: 365, 1966). Hooker offered no suggestion as to a possible affinity for *Burbidgea* and K. Schumann, on the basis of the small labellum alone, placed it beside the Burmese *Pommereschea*, a genus distinguished by its cordate or subsagittate leaves and long-exserted *Globba*-like filament, and the equally remotely related Afro-American *Renealmia*. Throughout western Malesia genera of the tribe Alpineae in which the inflorescence is borne terminally on a leafy stem are in the minority; they comprise *Burbidgea*, *Alpinia* s.l., *Plagiostachys* and the little known monotypic *Nanochilus palem-banicus*. In *Burbidgea* the inflorescence is usually without primary bracts and bracteoles and there is a narrow erect labellum which is all but hidden by the more conspicuous petals. Bracts or bracteoles (more usually both) are always present in the other 3 genera, although in some *Alpinia* they are quickly deciduous. In *Plagiostachys* and *Alpinia* the labellum is more or less pendulous and much the most showy part of the flower; that of *Nanochilus* is considerably reduced, but this plant has well formed primary bracts and tubular bracteoles.

There are good reasons to suppose that the true affinity of *Burbidgea* lies with the Papuan *Riedelia* as manifested in the large subgenus *Schefferia*, thus indicating a link with the Alpineae of eastern Malesia (which may well have followed a divergent pattern of evolution). Genera in which the inflorescence is borne separately from the leaves are far less common in New Guinea and the adjacent territories than in, say, Borneo, Java and the Malay Peninsula, and it is also of interest to note that the tribe Hedychieae is very poorly represented in New Guinea. Although *Riedelia* is probably the largest genus in New Guinea itself, *Alpinia* is also common but it is often a very different *Alpinia* to its western counterpart and the comments of the previous paragraph refer to the genus as it occurs in Borneo and the Malay Peninsula.

Burbidgea and *Riedelia* subgenus *Schefferia* agree in the lack of primary bracts and bracteoles, yellow to orange-red or sometimes pink-tinged flowers, which are borne singly on the main axis, and in the erect inconspicuous labellum. The cucullate dorsal petal, found with a single exception in all *Burbidgea* and the short tube formed by the union of the filament

with the base of the lip are also features of some *Riedelia*. The most important distinction lies in the calyx; in *Riedelia* it is deciduous and falls intact with the flower, that of *Burbidgea* follows the more usual pattern for Zingiberaceae and remains surmounting the developing capsule. Otherwise floral differences are slight; the *Burbidgea* labellum is much longer than broad and bilobed in the upper third (more rarely to almost halfway), whereas in *Riedelia* it is almost always broader than long, the lateral margins often curving behind the anther, and is frequently divided to the base. In the Bornean genus the anther connective is always prolonged into an elongated crest, that of *Riedelia* may develop a small rounded projection, more often it is crestless. A further difference lies in the fruit; as far as is known that of *Riedelia* is spherical to oblong, never narrowly elongated as in *Burbidgea*.

Burbidgea is a genus of herbaceous perennials, sometimes epiphytic, from c. 0.25 to over 3 m high, the leafy stems terminating in one or two bladeless sheaths surmounted by an unbranched inflorescence. The flowers, which are borne singly on the main axis, fall into two distinct groups: in one the dorsal petal is broadly ovate and the bilobed part of the lip petaloid (*B. nitida*, *B. pauciflora* and *B. longilora*); in the other the dorsal petal is elliptic and the lip non-petaloid (*B. schizoechela*, *B. stenantha* and *B. pubescens* (see fig. 1). All have predominantly yellow orange flowers, often pink-tinged, and in all cases darkening with age. At specific level the leaves provide important diagnostic characters. All are caudate acuminate and in *B. nitida*, *B. pauciflora*, *B. schizoechela* and *B. pubescens* the lamina is almost entirely glabrous. The indumentum in *B. stenantha* varies considerably, the lower leaf surface only may be pubescent—plants from the type locality—or hair may extend to both surfaces, or be almost lacking. In *B. longilora* the lamina is glabrous save for the densely hirsute midrib of the lower surface. Petioles are well developed on *B. pubescens* and *B. schizoechela*, in the remaining species the lamina is sessile on the sheath or very shortly petiolate. Leaf shape in *B. pauciflora* is most distinctive, the lamina here may be as much as 12 times as long as broad, in the remaining plants, although variable, up to 4 times the length is normal, occasionally as much as 8.

Burbidgea Hook. f. in Bot. Mag. t. 6403 (1879); Loesener in Pflanzenfam. 2 Aufl. 15a, 607 (1930).

Rhizomatous herbs up to c. 3 m high, sometimes epiphytic; stems many leaved, lamina petiolate or sessile, lanceolate to elliptic and up to c. 4 times as long as broad or narrowly lanceolate and up to 12 times as long as broad, caudate acuminate, glabrous or pubescent. Inflorescence few to many flowered, terminal on the leafy stem with up to 3 bladeless sheaths at the base, unbranched. Bracts usually absent, flowers borne singly, rarely in pairs on the main axis, shortly pedicellate; calyx clearly or obscurely bilobed, corolla tube long exserted or not, dorsal petal broadly ovate or elliptic; labellum forming a tube with the filament at the base, narrow, held erect, bilobed in upper $\frac{1}{2}$ – $\frac{3}{4}$, the bilobed part petaloid or not; lateral staminodes absent. Stamen with no free filament, anther thecae parallel, connective prolonged into an elongated dentate or more or less entire crest; stigma more or less truncate, ciliate; epigynous glands short, thick, often not divided to the base; ovary trilocular, placentation axile; fruit, as far

as is known, a much elongated dry capsule, probably splitting irregularly down one side, seed apiculate, almost completely enclosed by a chartaceous aril.

Distribution: Borneo. Type: *Burbidgea nitida* Hook. f.

- | | | |
|-----|---|----------------------------|
| 1a. | Dorsal petal broadly ovate; lip petaloid at apex | 2 |
| 1b. | Dorsal petal elliptic; lip not petaloid at apex | 4 |
| 2a. | Leaves up to 12 times as long as broad; inflorescence 2-5
flowered | 2. <i>B. pauciflora</i> |
| 2b. | Leaves usually not more than 4 times as long as broad (rarely
as much as 8); inflorescence many flowered | 3 |
| 3a. | Leaves quite glabrous; dorsal petal not cucullate | 1. <i>B. nitida</i> |
| 3b. | Leaves densely pubescent on the mid-rib below; dorsal petal
shortly cucullate | 3. <i>B. longilora</i> |
| 4a. | Leaves more or less sessile; corolla tube usually twice the
length of the calyx or more | 5. <i>B. stenantha</i> |
| 4b. | Leaves distinctly petiolate; corolla tube $1\frac{1}{2}$ times the length of
the calyx or less | 5 |
| 5a. | Plant glabrous; under 30 cm high; sheaths and lower surface
of leaves purplish | 4. <i>B. schizoscheila</i> |
| 5b. | Plant with pubescent sheaths, ligule and inflorescence; up to
c. 3 m high; leaves green | 6. <i>B. pubescens</i> |

1. *Burbidgea nitida* Hook. f. in Bot. Mag. t. 6403 (1897). Fig. 1, A.

Type: Sarawak, Fifth Division, between Lawas and Trusan rivers, 300-450 m, *Burbidge* s.n. Hort. Veitch 1878 (K). Cultivated material only.

Borneo: without precise locality, *Curtis* s.n. Hort. Veitch 1897 (K). Cultivated material only.

The type species of *Burbidgea* is described as from 0.75-1 m tall (more rarely over 3 m), almost entirely glabrous with sessile elliptic lanceolate caudate leaves up to c. 15 cm long. The broadly ovate dorsal petal is non-cucullate, the lobed part of the lip petaloid and there is an acuminate irregularly dentate anther crest. Merrill (Sarawak Mus. Journ. 3: 520, 1928) states that *Mjoberg* 122, collected from Gunong Murud belongs here; this we are unable to verify.

2. *Burbidgea pauciflora* Valetton in Ic. Bog. 3: 7, t. 203 (1906). Fig. 1, B.

Type: Borneo, without precise locality, *Nieuwenhuis* s.n. Hort. Bogor. Cultivated material only.

Sarawak: Third Division, Ulu Tiau, Mujong, Balleh, 27 iii 1964, *Asah ak Unyong* 21141 (SAR, AAR, E); Kapit, Sungei Balang, tributary of the Balleh headwaters, 17 vii 1969, *Anderson & Paie* 28886 (SAR, E, K, L, A).

This is a very distinct species. The sessile or very shortly petiolate leaves are rarely more than 2 cm wide and may be up to 25 cm long. The flowers are the largest of the genus, the ovate dorsal petal is very shortly cucullate and there is an elongated more or less bilobed anther crest. The recent Sarawak collections agree well with Valetton's description except that the number of flowers may be up to 7 per inflorescence, not 2 as in the type plant.

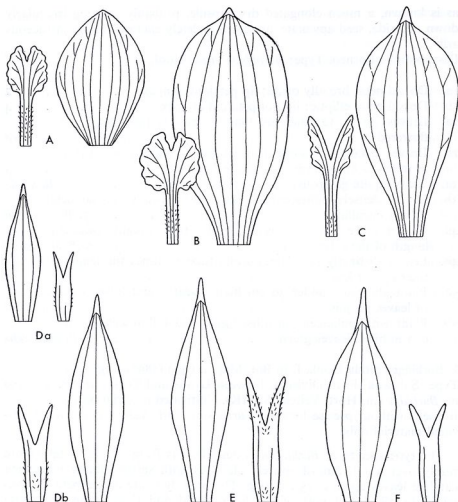


FIG. 1. Dorsal petals and lips in *Burbidgea*. A, *B. nitida* (type); B, *B. pauciflora* (Sarawak Forestry Dept. 21141); C, *B. longilora* (Hewitt & Brooks Z1); D, *B. stenantha*: a, type; b, *B. 4821*; E, *B. pubescens* (R.S.N.B. 4467); F, *B. schizocheila* (type). All $\times 2$.

3. *Burbidgea longilora* (Ridl.) R. M. Smith, **comb. nov.*** ob petalum dorsale late ovatum et apicem labelli petaloideum *B. nitidae* affinis, sed differt petalo dorsali breviter cucullato, foliis basi rotundatis infra in costa dense pubescentibus. Fig. 1, C.

Herba certe 75 cm superans. *Folia* vaginis glabris; ligula glabra, 0.3–0.4 cm longa lobis rotundatis; lamina vel sessilis vel petiolo brevi usque ad 0.6 cm longo pubescente instructa, lanceolata caudato-acuminata, basi rotundata, 10–20 cm longa (cauda 2–4 cm exclusa), 3–6 cm lata, costa subtus dense pubescente excepta glabra. *Inflorescentia* multiflora, rhachide glabra c. 7 cm longa, pedicellis usque ad 0.5 cm, glabra. *Calyx* (ovario excluso) 1 cm longus, glandulosus, glaber, plus minusve truncatus, leviter bilobus. *Corolla*

* See addendum, p. 306.

tubo gracili c. 2 cm longo glabro; lobus dorsalis ovatus, c. 2.5×1.2 cm, apice cucullato 0.2 cm; lobi laterales dorsali plus minusve aequales, lanceolati, c. 0.6 cm lati. *Labellum* basi cum filamento in tubum c. 0.2 cm longum connatum; pars libera angusta 1.2–1.4 cm longa dimidio superiore in lobos duos petaloideos divisa, basi intus pubescens. *Stamen* labello aequilongum; anthera 0.5 cm longa, connectivo in cristam c. 0.7 cm longam integram vel irregulariter dentatam basi leviter pubescentem prolongato. *Ovarium* anguste cylindricum, 0.5–0.7 cm longum, glabrum. *Fructus* ignotus.

Sarawak, First Division, Mt. Bongo, flowers red, February 1908, Hewitt & Brooks Z1 (SING); June? 1908, Hewitt s.n. (K).

Ridley (Gard. Chron. 44: 340, 1908), who saw living material at Singapore Botanic Garden, determined this plant as *B. schizocheila*, remarking that 'it differs slightly from the plant as figured in the Botanical Magazine'. It is difficult to comprehend why Ridley made such a statement; the more or less sessile leaves and ovate dorsal corolla lobe together with the petaloid lobing of the lip are quite uncharacteristic of *B. schizocheila* as figured in Bot. Mag. t. 8009.

B. longilora is closely allied to *B. nitida*, from which it may be easily distinguished by the densely pubescent mid-rib of the lower leaf surface and by the shortly cucullate dorsal corolla lobe. It is over 75 cm high, the sheaths and ligule are glabrous and the subsessile lamina, which is conspicuously rounded at the base, is 10–20 cm long (excluding the 2–4 cm tip) and 3–6 cm wide.

The glabrous inflorescence bears many shortly pedicellate flowers and the slender c. 2 cm long corolla tube is well exserted from the indistinctly bilobed calyx. The dorsal corolla lobe, 2.5 cm long \times 1.2 cm wide, is shortly 0.2 cm cucullate, the lateral lobes more or less the same length but only 0.6 cm wide. The free part of the lip is divided to half way into 2 narrow petaloid lobes, and is lightly pubescent at the base. The stamen which is about the same length as the lip bears an irregularly toothed or perhaps entire 0.7 cm crest. Non-stipitate glands are present throughout the flower but are most conspicuous on the glabrous ovary. Such glands occur in all *Burbidgea* but in no other species are they as prevalent as in *B. longilora*.

4. *B. schizocheila* Hackett in Gard. Chron. 36: 301 (1904); Wright in Bot. Mag. t. 8009 (1905). Fig. 1, F.

Type: Borneo, without precise locality; hort. Kew from Buitenzorg Botanic Gardens, 1903 (K). Cultivated material only.

The type material of *B. schizocheila*, which was received from Java under that name, only consists of a single leaf and 2 loose flowers and the following comments rely heavily on the description and figure given in the Botanical Magazine. The plant is glabrous, up to 40 cm tall, with elliptic, shortly caudate, petiolate leaves; sheaths and lower leaf surfaces are brownish-purple, the colour extending to the margins of the upper leaf surface. The dorsal petal is long cucullate, the lip non-petaloid and the corolla not long exserted from the calyx. The ovary in the type material is shortly pubescent, and the lip glabrous within, not, as figured, lightly pubescent. Amongst the material of *Burbidgea* examined only one sheet seems likely to belong to

B. schizoecheila, but it too has no known wild origin (U.S.D.A. Plant Introduction Garden PI No. 242616, originally received from L. Maurice Mason, King's Lynn, Norfolk in 1957), and the flowers are too immature to allow critical examination.

The flower of *B. schizoecheila*, although smaller, is very similar to that of *B. pubescens* and the distinctly petiolate leaves are also common to both species. The purple lower leaf surface of *B. schizoecheila* should not be regarded as a stable character, such colouring is probably influenced by conditions of growth, and height too is an unreliable factor. Plants of *B. pubescens* in cultivation at Edinburgh for 4 years have yet to reach 1 m and are also rather less pubescent than those from the wild. Unless further information on *B. schizoecheila* is forthcoming it is clearly impossible to do other than remark that the 2 species are probably very closely related.

5. *B. stenantha* Ridl. in Journ. Bot. 75: 202 (1937). Figs. 1D, 2B.

Herb up to 2 m high, sometimes epiphytic; stems slender. *Leaf* sheaths lightly pubescent or glabrous; ligules up to 1.5 cm, usually much less, lightly pubescent or at least the margins ciliate; lamina subsessile, petiole never exceeding 0.5 cm, lanceolate acuminate, long caudate, attenuate or rounded at the base, pubescence variable from more or less glabrous to pubescent on both surfaces, commonly lightly pubescent at least on the base beneath and on the cauda. *Inflorescence* many flowered, main axis shortly pubescent, pedicels up to c. 0.6 cm, pubescent. *Calyx* 1.3–1.5 cm, distinctly bilobed, the lobes shortly toothed, glabrous. *Corolla* tube c. 3 cm long, usually slender; dorsal lobe elliptic, 1.7–2.5 cm \times 0.5–0.7 cm, distinctly glabrous. Labellum narrow, 1 cm \times 0.2–0.3 cm, slightly wider and bifid in upper third, sometimes lightly pubescent the base forming a short tube with the filament. *Stamen* fractionally longer than the lip, lightly pubescent dorsally; free part of filament 0 or minute, anther 0.5–0.7 cm, connective prolonged into a more or less oblong indistinctly dentate crest. *Epigynous glands* c. 0.1 cm long. *Ovary* narrowly elongated, c. 0.5 \times 0.7 cm long, shortly and densely pubescent, sometimes almost velutinous. *Fruit* narrowly elongated 6 \times 0.4 cm, shortly pubescent, becoming glabrous.

Type: Sarawak, Fourth Division, Upper Baram, Gunong Temapok, 3000 m, 6 xi 1920, Moulton 6699 (K).

Sarawak: Type locality, 6 xi 1920, Moulton 6700 (K); 5 xi 1920, Moulton 6671 (K); 7 xi 1920, Moulton 6751 (K). First Division: near Kuching, flowers orange red, 15 iii 1893, Haviland 3132 (K). Third Division: Bukit Mabong, 6 viii 1967, Burt & Martin, B. 4821 (E.); Hose Mts., Bukit Nibong, 8 viii 1967 Burt & Martin, B. 4854 (E.); Fourth Division: Niah Caves, 4 vi 1962, Burt & Woods, B. 2007 (E).

Detailed descriptions of *B. stenantha* and the succeeding species, *B. pubescens*, have been included for two reasons. Ridley's original descriptions leave much to be desired and the gatherings cited exhibit a wide range of variation. *B. stenantha* is most readily distinguished from *B. schizoecheila* and *B. pubescens* by the more slender habit, narrower, sessile or subsessile leaves, generally smaller flowers and by the slender corolla tube which is usually at least twice the length of the calyx. Plants from the type locality have more or less glabrous leaves and the margins may be ciliate (the tips

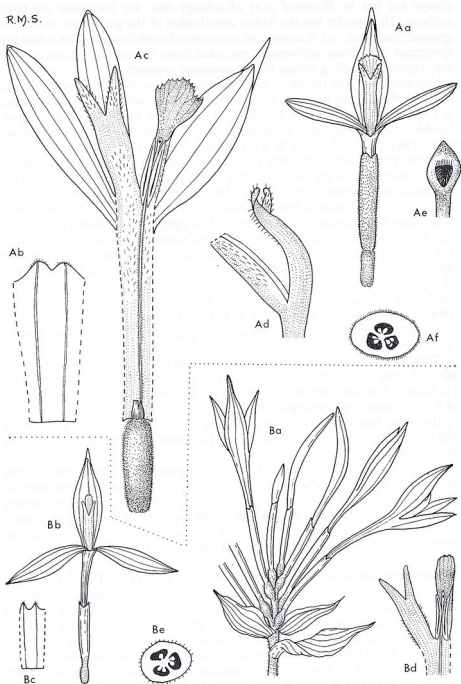


FIG. 2. A, *Burbidgea pubescens*: Aa, flower $\times 1$; Ab, calyx dissected $\times 2$; Ac, corolla dissected $\times 2$; Ad, lip and anther viewed laterally $\times 3$; Ae, stigma $\times 10$; Af, ovary in T.S. $\times 4$. B, *Burbidgea stenantha*: Ba, inflorescence $\times 1$; Bb, flower $\times 1$; Bc, calyx dissected $\times 1$; Bd, lip and filament $\times 2$; Be, ovary in T.S. $\times 4$. A from R.S.N.B. 4467; Ba from Burtt, B. 4821; Bb-e from Moulton 6699.

always so) but in *Haviland* 3123 (Kuching) they are pubescent on both surfaces. This species has the widest distribution of the genus and shows the greatest variation, yet it cannot be conveniently subdivided. The following specimens have been deliberately excluded from the main citations but all are regarded as falling within the *B. stenantha* complex.

(1) Sarawak. Fourth Division: Ulu Mayeng, Kakus, shade epiphyte by river at 5 m, inflorescence pendant, stems 1.75 m long, flowers entirely rich orange, 7 x 1963, *Ashton* S. 19296 (SAR, K, L, C); Ulu Mayeng Kakus, basalt hillside, mixed Dipterocarp forest, c. 200 m, herb, flowers bright yellow, 1 viii 1964, *Sibat ak Luang* S. 21845 (SAR, K, L, AAR, SING, A).

These plants are pubescent throughout with sessile lanceolate elliptic leaves up to 16 x 6 cm (not including the 2-3 cm tip). The leaves of typical *stenantha* are narrower and the Ulu Mayeng plants are further anomalous in that the corolla tube is not long exserted from the calyx. A further collection from Kalimantan (*Hallier* B2679, Lianggagang—K, SING) is similar but the leaves are glabrous above and the membranous ligule is up to c. 1.5 cm long. Again the corolla tube is only shortly exserted but, as with the Sarawak collections, the specimens are rather immature and the tube may elongate later.

(2) Sabah: Mulu Subahan, growing on branches of a tree, 300 m, orange yellow, 1 m high, 28 v 1933, *Keith* 3132 (K); Elopura, Sandakan, Sepagoya FR, epiphyte on big tree, 1 m high, flowers light yellow, 12 v 1949, *Cuadra* A2303 (K).

These epiphytes have leaves up to 26 cm long and unusually long pedicels, up to 6 mm. They appear to represent a gradation towards *B. pubescens*.

(3) Sabah: Gunong Meliau, bright orange flowers, stems to 2 m long, 550 m?, 29 iii 1960, *Collenette* 514 (K).

Here the leaves are unusually narrow, never more than 2.5 cm wide although they may be 15-18 cm long. The most interesting feature is the anther crest, which is clearly 3-lobed.

A gathering from Sarawak (Mt. Dulit, *Richards* 1737) is annotated 'leaves purplish bronze below', which might seem to indicate that the plant may be *B. schizocheila*. But, as we have already remarked, such colour patterning is dependent upon habitat and should not be regarded as a reliable character. The specimen lacks mature flowers but the narrow petals and lip, together with the subsessile leaves suggest that it lies closest to *B. stenantha*.

6. *Burbidgea pubescens* Ridl. in Journ. Bot. 75: 203 (1937). Figs. 1E, 2A.

Herb, sometimes epiphytic, up to 2 m or more. *Leaf* sheaths pubescent; ligule membranous, pubescent, up to 3 cm long; lamina petiolate (rarely a few subsessile on the same plant), petioles up to 5 cm long, lamina glabrous or ciliate at the margins, lanceolate to lanceolate elliptic up to 30 cm x 10 cm, often much smaller at the top of the stem, shortly caudate. *Inflorescence* usually with one or two bladeless sheaths at the base, main axis densely pubescent c. 6-15 cm long; pedicels pubescent 0.3-0.6 cm. *Calyx*, excluding the ovary, lightly pubescent, scarcely dentate or with teeth up to 0.4 cm, 1.5-2 cm long. *Corolla* tube pubescent or more or less glabrous c. 2-2.5 cm long; dorsal lobe elliptic 2.5-3 cm x 0.5-0.8 cm, distinctly cucullate; lateral lobes slightly shorter pubescent or more or less glabrous 0.3-0.5 cm wide. *Labellum* held erect, the base forming a short c. 0.2-0.3 cm tube with

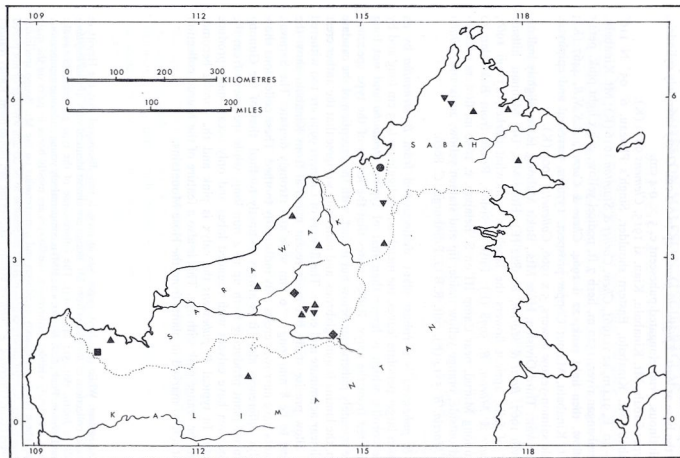


FIG. 3. Distribution of *Burbidgea*: ● *B. nitida*; ■ *B. longilora*; ◆ *B. pauciflora*; ▲ *B. stenantha* s.l.; ▼ *B. pubescens*.

the filament 1.5–2 cm long, divided in upper third, lightly pubescent. *Stamen* up to 1.5 cm, free part of filament 0 or minute, crest up to 0.8 cm \times 0.6 cm conspicuously dentate or narrower and less obviously toothed, pubescent at the base at least. *Epigynous glands* up to 0.2 cm. *Ovary* narrowly cylindric, velutinous. *Fruit* elongated pubescent c. 5 \times 0.4 cm.

Type: Sabah, Mt. Kinabalu, Kiau, xi 1915, *Clemens* 9939 (K).

Sabah: Mt. Kinabalu, Eastern shoulder, Singh's Plateau, 6° 05' N 116° 36–40' E, 914 m, 12 vi 1961, *Chew, Corner & Stainton* 1016 (K); Mt. Kinabalu, Bembangan river, 1520 m, herb 7 ft, pedicel yellow, calyx light pink, petals yellow, then light pink, 22 ii 1964, *Chew & Corner, R.S.N.B.* 4467 (K); Mt. Kinabalu, Mamut Copper prospect, 1370 m, terrestrial and epiphytic, pale salmon-yellow flowers, 5 x 1966, *Collenette* 1003 (K).

Sarawak: Third Division, Hose Mts., Bukit Mabong, leaves slightly bullate, 6 viii 1967, *Burt & Martin, B.* 4822 (E); Hose Mts, Ulu Melinau, hillside W of falls, apricot flowers the labellum somewhat darker, 23 viii 1967, *Burt & Martin, B.* 5078 (E); Fifth Division, Route from Bakelalan to Gunong Murud, near Camp III on S. Belapan, c. 1650 m, flowers orange-red outside, orange yellow inside, lip and stamen yellow, 29 ix 1967, *Burt & Martin, B.* 5314 (E), cult. R.B.G. Edinburgh, C. 8086.

B. pubescens is a robust plant, distinguished from *B. stenantha* by its much larger petiolate leaves, the membranous ligule up to 3 cm long and by the corolla, which is larger than that of typical *stenantha* and not long exerted from the calyx. Ridley states that the leaves of the type specimen are minutely puberulous below but in fact, with the exception of the caudate tip, the lamina is quite glabrous, and neither do we agree that the anther crest is linear acuminate and entire. The flowers of *Clemens* 9939 are too withered to allow precise study but more recent material from Kinabalu show the crest to be 8 mm long \times 6 mm wide and strongly dentate. The Sarawak plants have narrower crests only indistinctly toothed. These collections show calyx differences also; it is always distinctly toothed, that of the Gunong Murud plant producing teeth up to 4 mm long, while specimens from the type area have calyces with rounded lobes and only occasionally produce teeth. In typical *B. pubescens* the calyx is pink and the corolla becomes pink or orange pink with age. This is also a feature of the Murud collection but not so marked in plants from the Hose Mountains.

Addendum. While the above paper was in press it was discovered that the Hewitt & Brooks collections of *Burbidgea* from Mt. Bongo are almost identical with *Alpinia longilora* Ridl. in Journ. Bot. 51: 247 (1913). The inflorescence of the type gathering (Sarawak: First Division, Puak, C. J. Brooks, s.n., BM) is comparatively young and some membranous bracts are clearly visible; furthermore, the flowers are mostly borne in pairs on the main axis. These bracts are quickly deciduous and none remains on the Mt. Bongo specimens whose rather decrepit inflorescences make it impossible to be certain whether or not paired flowers occur. Otherwise, *B. longilora* exactly matches the Mt. Bongo plant. Ridley realized that this species had characters unusual in *Alpinia* sect. *Cenolophon*, but apparently never considered placing it in *Burbidgea*. It has not been possible to amend the generic key (p. 176) to cover the discovery of bracts in this species of *Burbidgea*.