

A dwarf *Livistona* (*Palmae*) from Borneo

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Summary. A new palm species, *Livistona exigua*, is described from Borneo (Brunei), the first dwarf species known in the genus.

Livistona is a genus of fan palms of about 28 species predominantly SE. Asian and Australian in distribution. The greatest diversity is found in Australia with about eleven species; here the genus ranges from tree palms up to 20–30 m tall down to shrub-like species (e.g. *L. humilis* R. Br.) with short stocky trunks to 5 m tall. In the Malesian rain forests *Livistona* is represented by tall tree palms only, these at maturity contributing in some way to the forest canopy, and this has hitherto appeared to be the constant aspect of the genus in these conditions. In the undergrowth another genus of Coryphoid palms, *Licuala*, has undergone extensive speciation; all except for one or two tree species (e.g. *Licuala muelleri* H. Wendl. & Drude) of Queensland are undergrowth species. Beccari (1933) noted that the genus *Livistona* was curiously absent from Borneo; since then, however, a representative from lowland swamp within the complex of *L. saribus* (Lour.) Merr., corresponding with *L. hasseltii* Hassk. of Java, has been found over a wide area of South Kalimantan (Indonesian Borneo) and herbarium specimens in Kew from Sandakan are apparently the same taxon.

It was then most surprising to discover in the unmounted palm material at Kew a diminutive undergrowth *Livistona* collected by P. S. Ashton in 1959 in Brunei. This might easily have been passed over as a *Licuala* because of its small size were it not for the marked difference in leaf dissection between these two genera. In *Livistona* the lamina is partially divided up into compound or single-fold induplicate leaflets (i.e. V-shaped with margins adaxial, see Fig. 1c). The deepest splits normally extend only to about three-quarters of the radius of the lamina and are on the adaxial folds. Abaxial splitting occurs for a relatively short distance, producing cleft tips to the leaflets. In two species, *Livistona loriphylla* Becc. and *L. decipiens* Becc. from Australia, splits extend almost to the lamina base and there is a marked extension of the petiole into the lamina producing a typical ‘costapalmate’ leaf; in these two species, however, the splits are still adaxial and never quite reach the petiole.

In *Licuala* on the other hand the most prominent splits are abaxial and divide the lamina right to the base into wedge-shaped compound reduplicate leaflets (see Fig. 1A) or very rarely (e.g. *L. bidentata* Becc.) into single-fold reduplicate leaflets (see Fig. 1B). In both instances the outermost leaflets have an outer ad- and an inner abaxial margin, hence being both induplicate and reduplicate. A few species have undivided laminae (e.g. *L. grandis* H. Wendl.). This difference in lamina dissection between the two genera is consistently linked with characteristic flower features and gives the species of *Licuala* their highly distinctive appearance.

The Brunei palm has laminae incompletely divided into compound induplicate leaflets and this immediately suggested a fan palm other than *Licuala* and subsequent examination of the flowers indicated that the palm

is a remarkable new species of *Livistona*. This note is published in order to draw attention to this previously unrecorded dimension in the genus *Livistona*.

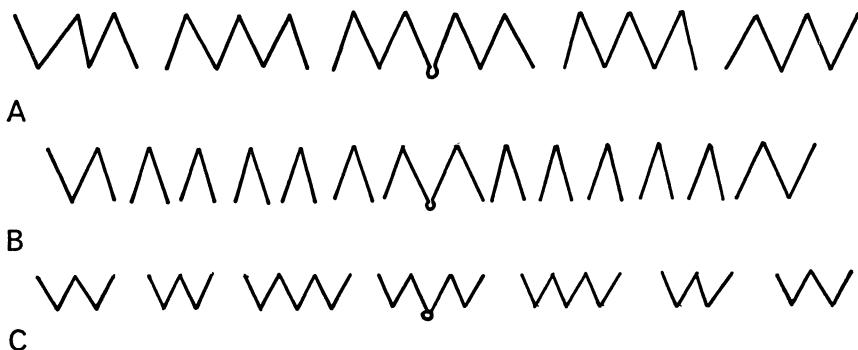


FIG. 1. Diagrammatic transverse sections of *Licuala* and *Livistona* laminae. **A**, *Licuala glabra*; **B**, *Licuala bidentata*; **C**, *Livistona rotundifolia* seedling. For explanation see text.

Livistona exigua Dransfield, sp. nov., a ceteris speciebus *Livistonae* amplitudine minima, caule usque 1.3 m alto, 2.5 cm diametro, folio minimo 50 cm diametro, in foliola latitudinis variabilis irregulariter diviso, inflorescentia erecta rigida minuta 30–40 cm alta, rachillis paucissimis trichomatibus inflatis dense tectis, floribus minutis circiter 1 mm diametro, sepalis extra trichomatibus inflatis dense tectis, fructu parvo 9 mm diametro, differt. Typus: Borneo (Brunei), *Ashton* BRUN 5513 (holotypus, K; isotypi, BH, BO, L, SAR).

Small forest undergrowth palm. *Stem* ? solitary or ? clustered (no details known) to 1.3 m tall by circa 2.5 cm in diameter. *Leaves* apparently about 10 in the crown; *leaf sheath* dull dark brown, extending 12.5 cm next to the petiole and to 30 cm opposite the petiole where it forms a papyraceous tongue, shiny within, tattering to form a close network of fibres enclosing the base of the leaves and inflorescences; *petiole* to 60 cm long by 6 mm wide below, tapering to 3 mm near the lamina insertion, spiny along the margins in the lower third, with spines blackish-brown, c. 4 mm long and 5 mm distant, reflexed and with slightly swollen bases, the petiole surface with scattered caducous pseudoparenchymatous peltate scales ab- and adaxially; *lamina* with a spread of circa 50 cm, the adaxial hastula conspicuous to 5 mm wide and 2–3 mm high, unarmed, of variable dissection (3 individuals examined) with 20–30 adaxial ribs split into 10–13 apparently moderately stiff leaflets of varying width ranging from compound leaflets with 2–6 folds to single fold leaflets (e.g. one leaf with one outer compound leaflet 5 folds wide followed by 3 single fold leaflets, followed by one compound leaflet 3 folds wide followed by one single fold leaflet followed by central compound leaflet 5 folds wide), the primary divisions of the lamina to within 2–3 cm of the hastula, the single folds 1–1.5 cm wide in mid-lamina and tapering to very fine tips split into two teeth by a split c. 1.5 cm deep, the ad- and abaxial ribs with scattered dark brown caducous pseudoparenchymatous scales, transverse veins prominent, the abaxial surface of the lamina with scattered scales, adaxial surface with very few. *Inflorescence* between the leaves, variable in size, possibly elongating with age, 30–40 cm in all, with peduncle 20–25 cm below the first partial inflorescence, the first partial inflorescence

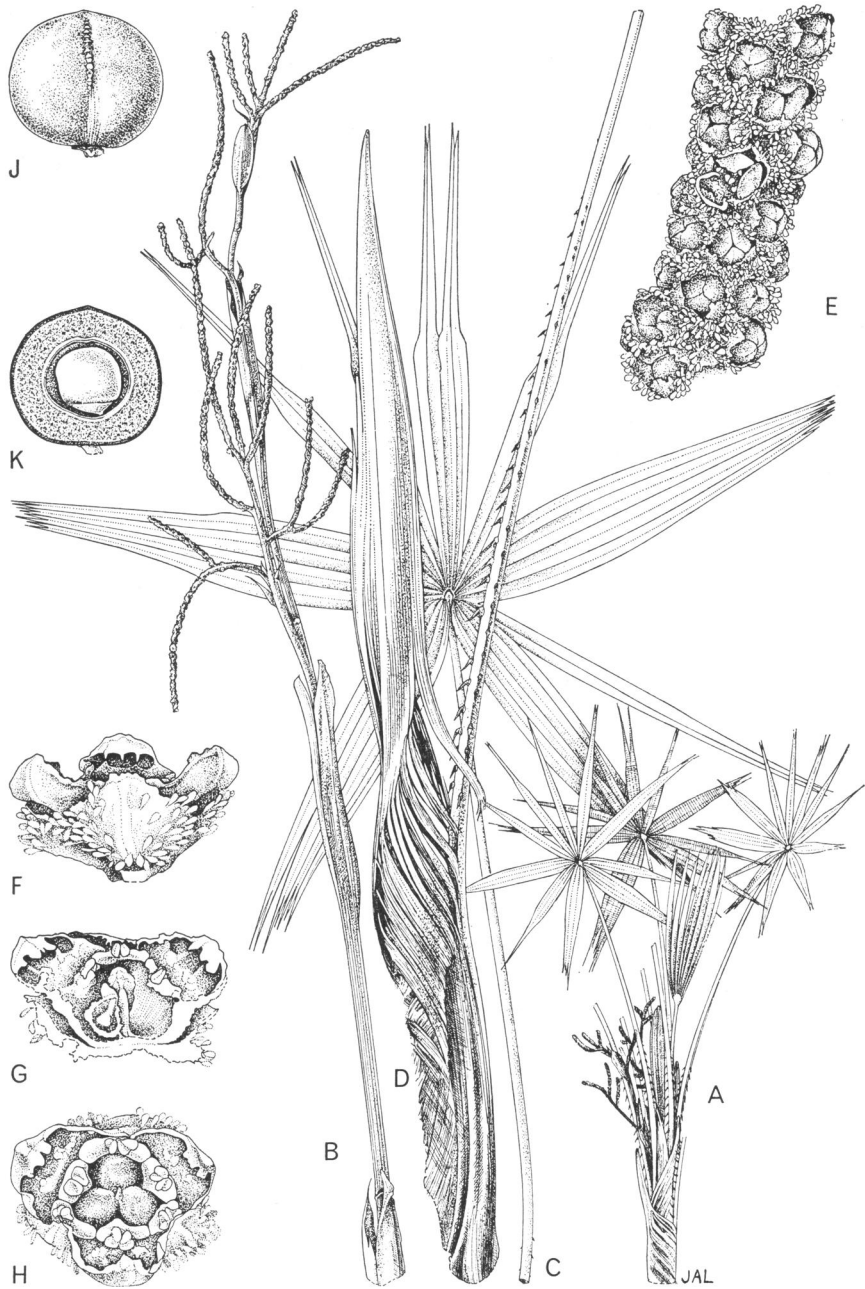


FIG. 2. *Livistona exigua*. A, habit, $\times \frac{1}{10}$; B, single inflorescence, $\times \frac{1}{2}$; C, single leaf showing leaflets of varying widths, $\times \frac{1}{4}$; D, leaf base showing well-developed tongue-like extension, $\times \frac{1}{2}$; E, portion of rachilla showing flower buds, $\times 11$; F, flower, side, $\times 20$; G, flower, vertical section, $\times 20$; H, flower, from above, $\times 20$; J-K, fruit, apparently almost mature. J, whole, $\times 2\frac{1}{2}$; K, vertical section, $\times 2\frac{1}{2}$. All from BRUN 5513.

diverging just above the leaf sheath; *bracts* 4, the first 2-keeled and empty, bilobed at the top, to 18 cm long, dark brown with pale brown scurfy indumentum along the keels, minutely longitudinally striate, subsequent bracts similar and each subtending a partial inflorescence; *partial inflorescences* with branches up to the second order, the whole partial inflorescence to 7 cm long, usually less; *axis* and *rachillae* densely covered with inflated indumentum and papillae, appearing very rough under magnification; *rachillae* 6–10 in each partial inflorescence, to 6 cm long, apparently stiff, digitate, densely covered in flower groups, each subtended by a fimbriate bract c. 0.2 mm high; *flowers* usually paired, one of the pair older than the other, each subtended by a minute fimbriate bracteole, scarcely distinguishable amongst the inflated indumentum, the flower pair (in dry material) somewhat sunk within the rachilla. *Flowers* hermaphrodite, minute, c. 1 mm in diameter at anthesis. *Sepals* 3, joined for about half their length to form a short tube c. 0.3 mm high with lobes c. 0.2 mm high, rounded, fimbriate, densely covered with inflated indumentum without. *Petals* 3, glabrous, broadly triangular, c. 0.4 mm high, joined for about $\frac{1}{4}$ of their length to form a very short basal ring. *Stamens* 6, minutely epipetalous, glabrous, to c. 2 mm high, joined by their swollen filament bases; *anthers* minute; *pollen* yellowish. *Gynoecium* of 3 closely adpressed free carpels joined apically to form a style c. 0.2 mm long, glabrous. *Fruit* (apparently almost mature) globose, c. 9 mm in diameter with remains of calyx, corolla and androecium basally and marked with a line running from apex to base; *epicarp* smooth; *mesocarp* c. 1.5 mm thick with numerous tannin cells; *endocarp* c. 0.3 mm thick. *Seed* (not quite mature) covered by thin brown integument with convoluted mass (postament) penetrating at the chalazal end. (Fig. 1.)

Known only from a single collection from Borneo (Brunei).

BORNEO. Brunei, Belait District, Ulu Ingei, yellow sandy soil, low hill circa 60 m altitude, Aug. 1959, *Ashton* BRUN 5513 (K, holotype; BH, BO, L, SAR, isotypes).

Dr. P. S. Ashton (pers. comm.) recalls that the area where the palm grew is on shallow podsolic sands in forest ecotonal between mixed Dipterocarp and Heath forest on Miocene and Pliocene sandstones belonging to the Belait formation.

This palm would probably make an extremely attractive subject for cultivation and it is to be hoped that it can be recollected.

ACKNOWLEDGEMENTS

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REFERENCE

Beccari, O. (1933). Asiatic Palms—Corypheeae. *Ann. Roy. Bot. Gard. Calcutta* 13, 1–356.