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Dransfieldia (Arecaceae)—A New Palm Genus from Western New Guinea

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ABSTRACT. The systematic placement of the little-known species *Ptychosperma micranthum* (Arecaceae/Palmae: Arecoideae: Areceae) from far western New Guinea has been repeatedly disputed, resulting in recombinations in both *Heterospathe* and *Rhopaloblaste*. However, comparative morphological and molecular phylogenetic studies provide strong evidence against the placement of the species within any of these three genera, or indeed in any other accepted genus. Thus, a new genus, ***Dransfieldia***, is herein described and a new combination, ***Dransfieldia micrantha***, is made. Morphological character analyses demonstrate that the combination of character states that defines *Dransfieldia* is highly distinctive, despite the fact that many of the states are homoplasious. *Dransfieldia micrantha* is a slender, unarmed palm possessing a well-defined crownshaft, strongly ridged leaflets with entire, acute apices, an infrafoliar inflorescence with a persistent prophyll that is split apically by the exertion of the peduncular bract, a peduncle that is longer than the rachis, bullet-shaped multistaminate male flower buds in which the filaments in the outer whorl are irregularly inflexed in bud, and fruit with apical stigmatic remains. Molecular phylogenies strongly support the position of *Dransfieldia* within tribe Areceae, placing it within a clade of genera from the western Pacific.

Recent fieldwork for the Palms of New Guinea project (Baker 2002) has brought to light a curious palm species of uncertain affinities. Between 1997 and 2002, seven collections of this palm were made in far western New Guinea in the Kepala Burung (the Bird's Head or Vogelkop Peninsula), adjacent areas to the east, and on Waigeo in the Raja Ampat Islands. Herbarium research by the first author at the Museo di Storia Naturale dell'Università, Florence (FI) revealed that the palm had in fact been collected in the Kepala Burung more than a century beforehand by the Italian palm taxonomist Odoardo Beccari during his expedition to western New Guinea in 1872. Beccari described the palm as *Ptychosperma micranthum* Becc. (1877). However, Beccari's generic placement of the species was soon disputed by Joseph Hooker (1883; Jackson 1895), who regarded it as a member of the genus *Rhopaloblaste* Scheff. (*R. micrantha* (Becc.) Hook. f. ex B. D. Jacks.), and again by Harold Moore (1970), who recombined it in *Heterospathe* Scheff. (*H. micrantha* (Becc.) H. E. Moore). Despite the controversy, the basionym is currently regarded as the accepted name for the species (Govaerts and Dransfield 2005).

Recent research on the morphology and phylogenetics of tribe Areceae (Arecoideae; note that the new phylogenetic classification of the palm family [Dransfield et al., in press] is used throughout this paper) has yielded compelling new evidence against all three generic placements of *P. micranthum*. Detailed morphological character analyses (Norup 2004; Norup et al., submitted) have demonstrated that the taxon is defined by a unique combination of character states and is clearly distinct from the three genera in which it has been combined, as well as all other genera in the tribe. These findings are corroborated by extensive phylogenetic data (Norup 2004; Lewis et al., submitted; Norup et al., submitted). On the basis of this body of evidence, a new genus, *Dransfieldia* W. J. Baker & Zona, is herein described and a new combination, *Dransfieldia micrantha* (Becc.) W. J. Baker & Zona, formally published to accommodate this distinctive palm.

TAXONOMIC TREATMENT

Dransfieldia W. J. Baker & Zona, **gen. nov.**—TYPE: *Dransfieldia micrantha* (Becc.) W. J. Baker & Zona.

Inter genera alia tribus Arecearum habitu caespitoso vel solitario, caule gracili, foliis inermibus, vaginis foliorum columnam coronae formantibus, foliolis porcatis angustis apicibus anguste acutatis, inflorescentia infrafoliari, prophyllo persistenti, apice prophylli a bractea pedunculari 1 exserta findenti, pedunculo rhachim superanti, gemma mascula cylindracea, staminibus numerosis, filamentis verticili exterioris inflexis, pistillodio brevi, fructu vestigio stigmatum apicali, semine terete, albumine ruminato statim diagnoscenda.

Small to moderate, clustering or solitary, unarmed, pleonanthic, monoecious understory tree palm. **Stem** erect, slender, ringed with prominent leaf scars. **Leaves** pinnate, few in crown; sheath strictly tubular, forming well-defined crownshaft, glabrous adaxially, abaxially with sparse to dense indumentum of brown-black irregular scales of various sizes and brown to white matted fibrous scales; petiole present, slender, adaxially channelled, abaxially rounded, covered with indumentum as on leaf sheath; rachis long, slender, adaxially forming a ridge, abaxially rounded, with indu-

mentum as on petiole; leaflets subopposite to alternate, arranged regularly, in one plane, single-fold, spreading, appearing corrugated due to presence of conspicuous raised ridges on adaxial surface of major veins, linear to narrowly elliptic, attenuating to a narrowly acute apex, sometimes with few, widely separated, shallow indentations to one side of apex, distal leaflets with apex acute and usually notched, apical leaflet pair not united at base, with brown medifixed ramenta scattered on abaxial surface of major veins and more numerous near leaflet base, with scales as on rachis on both surfaces of leaflet base, minute white scales sparsely distributed throughout both surfaces visible in fresh material, transverse veinlets not evident. **Inflorescence** infrafoliar, branched to 2 (rarely 3) orders, protandrous, somewhat deflexed at anthesis, divaricate, with sparse to densely matted brown stellate scales throughout inflorescence axes, bracts, and bracteoles; peduncle relatively slender, elongate, elliptical in cross section, longer than rachis; prophyll persistent, though sometimes tattering or caducous, splitting apically or subapically by emerging inflorescence enclosed within first peduncular bract; peduncular bracts few, differentiated, first peduncular bract similar to prophyll but lacking keels, tubular, attached midway up peduncle, exserted from prophyll and enclosing inflorescence prior to expansion, splitting abaxially and distally on inflorescence expansion, typically caducous, though sometimes persistent and tattering; remaining peduncular bracts inconspicuous, triangular, incomplete; rachis shorter than peduncle, angled, tapering; rachis bracts low, rounded; primary branches several, spirally arranged; rachillae fleshy, tapering, usually bearing spirally arranged triads of flowers throughout, rarely pistillate flowers absent from triads throughout inflorescence (*Heatubun 328,* K); rachilla bracts inconspicuous; floral bracteoles low, rounded or truncate. **Staminate flowers** borne laterally toward the upper side of the pistillate flower in rounded indentations in the rachillae, symmetrical, bullet-shaped in bud, glabrous or with scattered scales as inflorescence; sepals 3, distinct, strongly imbricate, orbicular, spathulate, coriaceous, thickened abaxially, thinning towards margin, margins minutely ciliate; corolla united basally, corolla lobes 3, valvate, ovate, indurated; stamens numerous, up to 19, filaments awl-shaped, outer whorl irregularly inflexed in bud and basally adnate to the petals, inner whorl erect in bud, anthers ellipsoidal, dorsifixed, versatile, connective dark, dehiscence latrorse; pollen ellipsoidal slightly asymmetric, occasionally pyriform, aperture a distal sulcus, ectexine tectate, finely perforate-rugulate, aperture margin similar, infratectum columellate; pistillode trilobed or papilla-like. **Pistillate flowers** symmetrical, subglobose, glabrous or with scattered scales as inflorescence; sepals 3, distinct, strongly imbricate, closely resembling staminate sepals; petals 3, strongly imbricate, resembling sepals but thinner and with acute apices; staminodes 3–4, shortly joined basally, truncate; gynoecium ovoid, symmetrical, pseudomonomerous, unilocular, uniovulate, stigmas 3, ovule located near base of gynoecium, laterally attached, ?campylotropous. **Fruit** ellipsoidal, stigmatic remains apical, perianth persistent and clasping; epicarp thin, smooth, mesocarp fibrous, endocarp closely adpressed to seed, comprising two layers of closely adhering fibers circular in cross-section. **Seed** ellipsoidal with flattened base surface smooth, hilum basal, raphe lateral, endosperm deeply ruminate, embryo basal. **Eophyll** bifid.

Dransfieldia micrantha (Becc.) W. J. Baker & Zona, **comb. nov.** *Ptychosperma micranthum* Becc., Malesia 1: 52. 1877. *Rhopaloblaste micrantha* (Becc.) Hook. f. ex B. D. Jacks., Index Kew. 2: 713. 1895 (non *Rhopaloblaste micrantha* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 10. 1940, nom. illeg.). *Heterospathe micrantha* (Becc.) H. E. Moore, Principes 14: 92. 1970.—TYPE: INDONESIA, PAPUA. Sorong Regency: Ramoi, Jun 1872, *Beccari 424.* (holotype FI!, sheets 11191 and 11191A–G, isotype fragment K!).

Clustering or rarely solitary, slender understory tree palm. **Stem** to 10 m in height, 2–5 cm diam., surface smooth, often reddish when young then turning brown, internodes 4.0–19.5 cm. **Leaves** 4–7 in crown, new leaves emerging reddish but soon turning green, 1–2 m long including petiole; sheath 30–45 cm long, crownshaft 50–60 × ca. 6 cm, green with white bloom, sometimes orange-red near the apex and extending into the abaxial side of the petiole, dark scales especially abundant at sheath mouth; petiole 10–20 cm long, 12–14 × ca. 11 mm at base; leaflets 12–27 on each side of rachis, borne 55–69 mm apart, concolorous, ramenta ca. 5 mm long; mid-leaf leaflet 52–76 × 2–5 cm; apical leaflets 18.0–36.0 × 0.8–1.7 cm. **Inflorescence** 34–60 cm long including peduncle and rachis, all axes red to purple at anthesis; peduncle 12–26 cm long, 9–13 × 5–8 mm at base; prophyll 11.5–27.0 × 1.4–2.0 cm, brown at anthesis; peduncular bracts 2–3, first peduncular bract 20.0–24.0 × 1.7–3.5 cm, remaining peduncular bracts 0.5–25.0 × 5.0–12.0 mm; rachis 9–17 cm long; primary branches 11–14, to 35 cm, with up to 7 rachillae each; rachillae 8.5–29.0 cm long, 1.5–3.5 mm diam. at anthesis, irregularly curvaceous, triads 15–28 per 5 cm; floral bracteoles spathulate, to 1 mm long. **Staminate flowers** 4.5–5.5 × 2.2–3.4 mm in bud near anthesis, purple; sepals 1.8–2.1 × 1.7–2.6 mm; corolla united in basalmost 0.5–1.4 mm, corolla lobes 4.2–4.8 × 1.7–2.5 mm; stamens 15–19, white, filaments 1.5–3.1 × 0.1–0.2 mm, anther 1.0–1.3 × 0.3–0.7 mm; pollen grains 30–40 μm long; pistillode less than 0.5 mm long. **Pistillate flowers** 3.8–4.3 × 3.3–3.9 mm in bud near to anthesis, purple; sepals 2.5–3.5 × 2.3–3.0 mm; petals 3.1–3.5 × 2–2.5 mm; staminodes ca. 3, 0.3–0.5 mm; gynoecium ca. 3.0 × 1.6 mm including stigmas ca. 0.7 mm. **Fruit** 15.0–15.9 × 7.6–9.5 mm; epicarp black when ripe, epicarp and mesocarp 0.7 mm thick, endocarp 0.3 mm thick, brown. **Seed** 8.9–11.0 × 6.1–7.0 mm. Figs. 1–2.

Distribution. Restricted to far western Papua province in Indonesian New Guinea. Known from Waigeo Island in the Raja Ampat Archipelago, the Kepala Burung (Sorong and Bintuni Bay), the lower slopes of the Wondiwoi Mountains and the vicinity of Etna Bay. Although records are relatively few, a consequence of low collection densities, we have no reason to believe that the species is not more widespread between these localities. Palm growers have reported that the species occurs in Papua New Guinea (Migliaccio 2001). We have seen no confirmation of this and suspect that a misinterpretation of the origin of the seed source has been made.

Habitat. Lowland forests and forest on slopes and ridge tops, 10–180 m elevation.

Local Names. *Ititohoho* (Jamur), *Kapis* (Biak-Raja Ampat), *Tama'e* (Wondama).

Uses. Stems used for harpoons. Leaves used for thatch. Unspecified parts used for sewing thatch. The species is grown as an ornamental in the USA and Australia, but is not yet widely available in the horticultural trade. Its colorful new leaves and inflorescences, along with its slender habit, make this palm highly desirable among palm collectors (Migliaccio 2001).

Conservation Status. Near Threatened. *Dransfieldia micrantha* meets criterion B1 for threat category ''Vulnerable'' because its extent of occurrence is less than 20,000 km^2, but it does not qualify for the requisite two out of three subsequent criteria B1a–c (IUCN 2001). However, the impact of widespread logging, both legal and illegal, suggests that *D. micrantha* will potentially meet the requirements of criteria B1a and B1b in the near future.

Etymology. *Dransfieldia* is named for Dr. John Dransfield, former Head of Palm Research at the Royal Botanic Gardens, Kew, and friend and mentor to all authors of this paper, in recognition of his monumental contributions both to Malesian palm systematics and to global knowledge of palm biology as a whole.

Specimens Examined. INDONESIA, PAPUA. Sorong Regency: Ramoi, Jun 1872, *Beccari 424* (holotype FI!, isotype fragment K!);

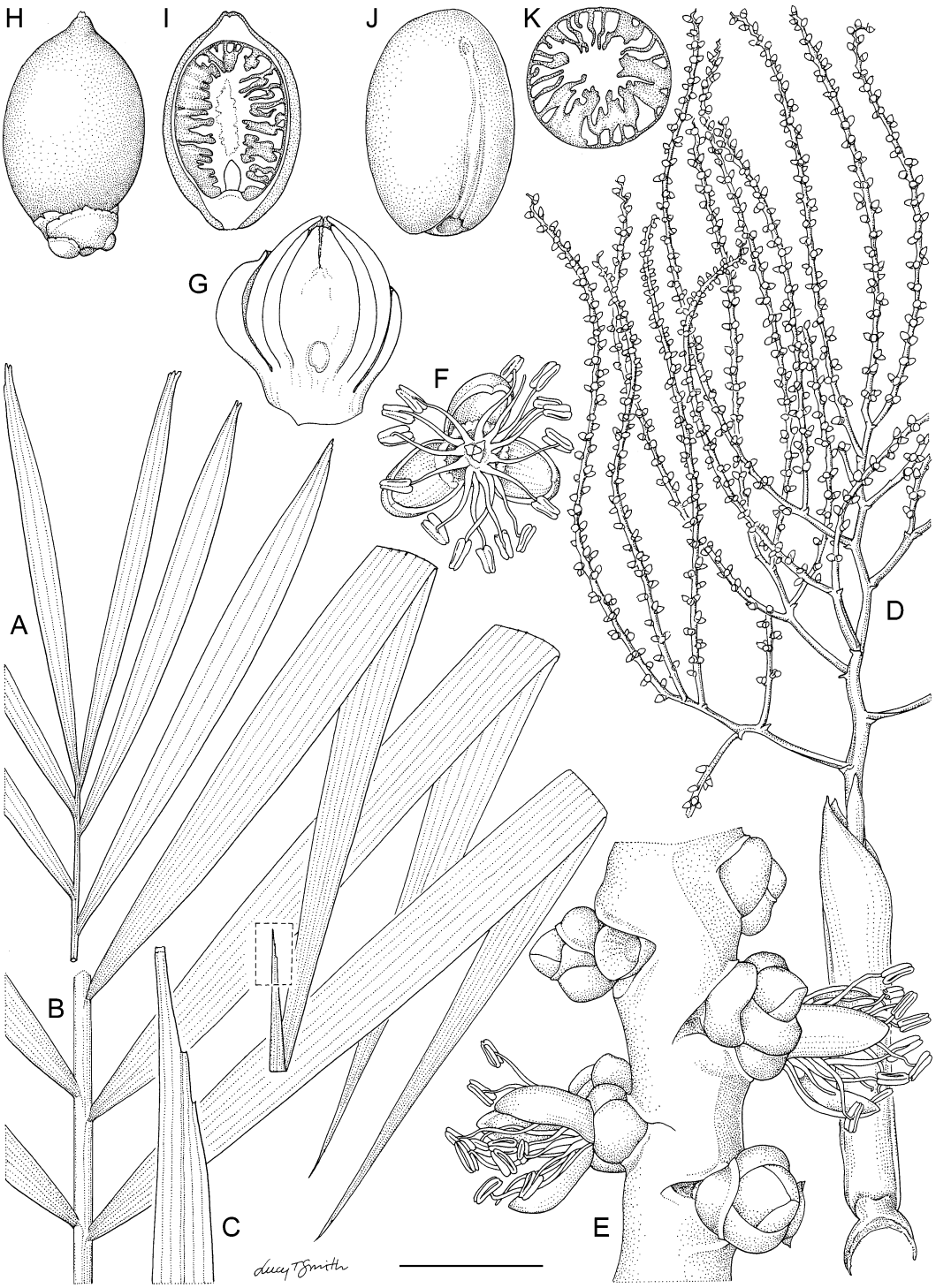

FIG. 1. *Dransfieldia micrantha*. A. Leaf apex. B. Mid-leaf portion. C. Detail of leaflet apex. D. Inflorescence (first peduncular bract fallen). E. Rachilla with staminate flowers at anthesis and pistillate buds. F. Staminate flower. G. Pistillate flower in longitudinal section. H, I. Fruit whole and in longitudinal section. J, K. Seed whole and in cross section. Scale bar: A, B = 6 cm; C, J, K = 7 mm; D = 4 cm; E, F = 5 mm; G = 3 mm, H, I = 1 cm. All from *Baker et al. 1067*, except E, F, G from *Baker et al. 1066* and D from *Heatubun 321*. Drawn by Lucy T. Smith.

FIG. 2. *Dransfieldia micrantha* in the foothills of the Wondiwoi Mountains (*Baker et al. 1066*). A. Habit, one stem removed from a clump, Rudi Maturbongs provides scale. B. Staminate flowers. C. Pistillate flowers, recently pollinated. D. Inflorescences. Photos by William J. Baker.

Raja Ampat Islands, Waigeo Island, Mamiai area near Yesner Village, 25 Jun 1997, *Heatubun 97* (K!, MAN); Warsamson, NE of Sorong town, 28 Jan 2002, *Maturbongs et al. 702* (BO, K!, LAE). Manokwari Regency: Wasior District, Sikama River, 3 km SE of Wosimi River at Senderawoi, 26 km SSE of Wasior (S 2° 57′ 2.7″, E 134° 34′ 22.5″), 26 Feb 2000, *Baker et al. 1066* (BO!, FTG!, K!, L!, MAN!); same locality and date, *Heatubun et al. 321* (AAU!, BO!, FTG!, K!, MAN!); same locality, 27 Feb 2000, *Baker et al. 1067* (BO!, FTG!, K!, L!, MAN!); near British Petroleum's Saengga Camp, 14 Feb 2002, *Maturbongs & Siwana 718* (BO, K!). Fak-Fak Regency: Etna Bay, Waribun, km 28 on P. T. Kaltim Hutama road, 31 Jan 2002, *Heatubun et al. 328* (FTG!, K!, MAN)

Nomenclatural Note. *Rhopaloblaste micrantha* Burret (1940) is a later homonym of *Rhopaloblaste micrantha* (Becc.) Hook. f. ex B. D. Jacks. Moore (1970) recognised this and accordingly published a *nomen novum, R. dyscrita* H. E. Moore. This name is now placed in synonymy with *R. ceramica* (Miq.) Burret (Banka and Baker 2004).

Discussion

In common with studies of other large and species rich groups (e.g., Hughes et al. 2004), many genera of Areceae are defined on the basis of unique combinations of homoplasious character states, rather than uncontradicted synapomorphies (Norup 2004; Norup et al., submitted). However, a combination of just two morphological character states that are widespread in the tribe, namely 1) leaf sheath remaining entire and tubular for at least three quarters of it length (i.e., forming a crownshaft) and 2) inflorescence prophyll persistent, is very rare in the tribe, being found only in *Dransfieldia* (Figs. 1, 2) and in three of the remaining 65 genera of Areceae: *Drymophloeus* Zipp. (Areceae: Ptychospermatinae), *Dypsis* Noronha ex Mart. (Areceae: Dypsidinae) and the monotypic *Roscheria* H. Wendl. ex Balf. F. (Areceae: Verschaffeltiinae). Moreover, the combination does not occur in all species of *Drymophloeus* and *Dypsis*. Two further states also occur in the same taxa, 1) inflorescence infrafoliar and 2) peduncle longer than the rachis, but despite these similarities, *Dransfieldia* is readily distinguished from the other three genera. Among other characters discussed in detail below, *Drymophloeus* and the rest of its subtribe differ in their praemorse, truncate leaflet apices; the leaflet apices of *Dransfieldia* are entire and acute. The stigmatic remains of all *Dypsis* species are positioned basally, whereas those of *Dransfieldia* are apical. The stems and leaves of *Roscheria* are spiny (*Dransfieldia* is entirely unarmed in all its parts) and its fruit bear lateral stigmatic remains. Biogeographically, *Dransfieldia* has nothing in common with *Dypsis*, which is endemic to Madagascar and neighboring islands, or *Roscheria*, a Seychelles endemic. *Drymophloeus* on the other hand occurs in New Guinea, ranging from the Moluccas through to the western Pacific.

Dransfieldia micrantha does not conform to the modern delimitations of any of the three genera in which it has previously been placed (Table 1). From a historical perspective, it is perhaps not surprising that the species was originally described in *Ptychosperma* Labill. (Areceae: Ptychospermatinae). We acknowledge that the gestalt of *Dransfieldia* is superficially reminiscent of *Ptychosperma* as circumscribed today, for example in general habit, in the infrafoliar inflorescence branched openly to two orders, in the well-spaced floral triads along somewhat fleshy rachillae, and in the multistaminate male flowers that are bullet-shaped in bud. However, as stated above the entire rather than praemorse leaflet apices immediately distinguish *Dransfieldia* from any member of the Ptychospermatinae, as do the conspicuous ridges on the adaxial surface of major veins. The persistent prophyll of *Dransfieldia* is split apically by the exertion of the first peduncular bract, which continues to enclose the inflorescence until expansion; this condition is unmatched in the Ptychospermatinae, in which both bracts remain nested within each other, split longitudinally and fall on inflorescence expansion. The only exceptions are *Drymophloeus oliviformis* (Giseke) Mart. and *D. litigiosus* (Becc.) H. E. Moore, which are somewhat similar to *Dransfieldia* in this respect. Notwithstanding the shared features of the staminate flowers, stamen number in *Dransfieldia* is lower than is typical for most genera of the Ptychospermatinae, with the exception of *Ptychosperma* itself, which may have as few as 10 stamens per flower. However, the filaments of all Ptychospermatinae are straight and erect in bud, whereas in *Dransfieldia* the filaments in the outer whorl are irregularly inflexed in bud, but those of the inner whorl are not. The pistillode in the staminate flowers of almost all Ptychospermatinae is well-developed and bottle-shaped, but that of *Dransfieldia* is minute and trifid. Thus, while some superficial similarities with the Ptychospermatinae can be identified, *Dransfieldia* diverges substantially from that well-defined and supported subtribe, and a link with any of the genera placed therein cannot be defended on morphological grounds.

Superficial similarities between *Dransfieldia* and *Heterospathe* (Areceae: not placed to subtribe) have been identified (Norup 2004; Norup et al., submitted) that may account for the spurious placement of the species in the genus. For example, the homoplasious character states 1) peduncle much exceeding the rachis and 2) peduncular bracts persistent are shared by both genera, although the peduncular bract of *Dransfieldia* is more often caducous. However, all species of *Heterospathe* lack well-defined crownshafts, their sheaths splitting abaxially and often tattering to fiber at the margin, and bear interfoliar inflorescences; *Dransfieldia* bears strictly tubular leaf sheaths in a narrow and very well-defined crownshaft, and always presents its inflorescence below the leaves. In transferring *Ptychosperma micranthum* to *Heterospathe*, Moore (1970) made no mention of these anomalies, even though he himself annotated type sheets in Florence on which the tubular leaf sheath is clearly evident.

TABLE 1. Comparison of key morphological characters between *Dransfieldia, Ptychosperma, Heterospathe* and *Rhopaloblaste*.

	Dransfieldia W. J. Baker & Zona	*Ptychosperma* Labill.	*Heterospathe* Scheff.	*Rhopaloblaste* Scheff.
Habit	Slender, clustering, rarely solitary, crownshaft well-defined	Slender to moderately robust, solitary or clustering, crownshaft well-defined	Slender to robust, solitary or clustering, well-defined crownshaft lacking	Slender to robust, solitary or clustering, crownshaft well-defined
Leaflets	Leaflets with ridges on adaxial surface of major veins, apices entire, acute	Leaflet lacking ridges, apices truncate, praemorse	Leaflets lacking ridges, apices entire, acute	Leaflets lacking ridges, apices entire, acute
Inflorescence architecture	Infrafoliar, peduncle elongate, primary branches divaricate, all branches straight in bud	Infrafoliar, peduncle usually short, primary branches divaricate, all branches straight in bud	Interfoliar, peduncle elongate, primary branches divaricate, all branches straight in bud	Infrafoliar, peduncle short, primary branches divaricate, basal pair strongly recurved, all branches packed sinuously in bud
Primary bracts	Prophyll persistent, sometimes tattering or caducous with age, first peduncular bract sometimes persistent, exserted from prophyll	Prophyll and first peduncular bract caducous, first peduncular bract enclosed within prophyll	Prophyll and first peduncular bract persistent, sometimes tattering or caducous with age, first peduncular bract exserted from prophyll	Prophyll and first peduncular bract caducous, first peduncular bract enclosed within prophyll
Staminate flower	Bullet-shaped, stamens 15-19, outer whorl inflexed, inner whorl erect, pistillode minute, trilobed	Bullet-shaped, stamens 10 to numerous, erect, pistillode bottle-shaped	Globose to ellipsoid, stamens 6-36, inflexed, pistillode conical or columnar	Globose to ellipsoid, stamens mostly 6, inflexed, pistillode usually conical
Fruit	Stigmatic remains apical	Stigmatic remains apical	Stigmatic remains apical or lateral	Stigmatic remains apical
Seed	Endosperm ruminate, embryo small	Endosperm homogeneous or ruminate, embryo small	Endosperm ruminate, rarely homogenous, embryo small	Endosperm ruminate, embryo relatively large
Eophyll	Bifid	Bifid	Bifid	Finely pinnate

Dransfieldia shares very few morphological features with *Rhopaloblaste* (Areceae: not placed to subtribe). Within the Areceae, *Rhopaloblaste* is unique in its inflorescence branches in the bud being packed sinuously and resembling intestines. Also, its first seedling leaf or eophyll is finely pinnate, a condition known elsewhere in the Areceae only in *Acanthophoenix* H. Wendl. (Areceae: Oncospermatinae). Other characters that define this clearly delimited genus of small to massive tree palms include their inflorescences with very short peduncles and recurved primary branches, the presence of twisted, basifixed scales on the leaf rachis, and the relatively large, club-shaped embryo (Banka and Baker 2004). None of these characters is shared with *Dransfieldia*.

In addition to the robust morphological evidence provided above, the recognition of *Dransfieldia* is strongly supported by recent molecular phylogenies. DNA sequences from *Dransfieldia* of two low-copy nuclear DNA regions, namely intron 4 of the Calvin cycle enzyme Phosphoribulokinase (*PRK*) and intron 23 of the second largest subunit of RNA Polymerase II (*RPB2*), have been included in two separate molecular phylogenetic studies, one focusing on relationships of subtribe Ptychospermatinae (Lewis et al., submitted), the other testing generic limits in *Heterospathe* and *Rhopaloblaste* (Norup 2004; Norup et al., submitted). These analyses support the placement of *Dransfieldia* within tribe Areceae, a robust clade of Indo-Pacific, pseudomonomerous palms from subfamily Arecoideae (Lewis and Doyle 2002) to which *Ptychosperma*, *Rhopaloblaste* and *Heterospathe* also belong. However, evidence of a sister group relationship with these three genera or with any of the other groups to which *Dransfieldia* has been compared here is not recovered.

In the second of the two studies (Norup 2004; Norup et al., submitted), all 65 accepted genera of Areceae were included, thus permitting an evaluation of the precise relationships of *Dransfieldia* (Fig. 3). Simultaneous analysis of both DNA datasets indicates that *Dransfieldia* resolves at a basal polytomy in a large but weakly supported clade of western Pacific genera of Areceae. One randomly selected most parsimonious tree (Fig. 3) places *Dransfieldia* as sister to the Clinospermatinae (Areceae), forming a group which, in turn, is sister to representatives of subtribe Linospadicinae (Areceae). While this relationship is absent from the strict consensus tree and lacks bootstrap support, it is potentially significant that a recent phylogeny of the palm family based on four plastid DNA regions also places *Dransfieldia* as sister to members of the Linospadicinae (Asmussen et al., in press). We have been unable to identify any morphological characters that substantiate these relationships. The Clinospermatinae comprises five genera of moderate, crownshafted palms that are endemic to New Caledonia. All of the genera bear fruits with lateral stigmatic remains and some have staminate flowers with didymous anthers and distinctive capitate pistillodes. The Linospadicinae is centred on New Guinea, Australia and Lord Howe Island, and contains four genera which bear open leaf sheaths that do not form a crownshaft, spicate inflorescences with persistent prophylls and, in all but one genus, persistent peduncular bracts, and flowers that develop within pits. Of these characters, those shared with *Dransfieldia* (e.g., presence of a crownshaft in Clinospermatinae, persistent prophylls in Linospadicinae) are highly homoplasious and poor indicators of sister group relationship. Thus, in the new phyogenetic classification of palms of Dransfield et al. (in press), *Dransfieldia* is placed in the Areceae, but not allocated to a subtribe and is listed along with 10 other genera as unplaced within the tribe.

The description of *Dransfieldia* brings the number of palm genera endemic to New Guinea to three. The distribution of *Dransfieldia* to some degree resembles that of one of the other endemic genera, *Sommieria* Becc., which ranges from the Raja Ampat Islands, through west Papua to northwestern Papua New Guinea, but it is obviously less extensive. The third endemic genus, *Brassiophoenix* Burret, is known only from Papua New Guinea.

Despite its complicated taxonomic history, *Dransfieldia* is not readily confused with any of the 28 remaining native palm genera in New Guinea. As a slender understory tree palm with a well-defined crownshaft and entire, acute (rather than praemorse) leaflet tips, it can be confused in its vegetative state only with *Areca* L. or *Pinanga* Blume (Areceae: Arecinae). However, the New Guinea species of both of these genera bear at least some compound leaflets consisting of more than one lamina fold, whereas the leaflets of *Dransfieldia* always comprise one fold only. In reproductive characters, *Dransfieldia* is highly distinct from *Areca* and *Pinanga*.

While the delimitation of genera in the Areceae continues to challenge palm taxonomists and is still subject to change (e.g., Baker and Loo 2004), it is our view that *Dransfieldia* is very unlikely to succumb to taxonomic synonymy unless an unprecedented broadening of generic concepts was to occur. Although some questions remain unanswered by current phylogenies, the considerable weight of morphological and molecular phylogenetic evidence is unequivocal in supporting the recognition of this enigmatic yet distinctive new genus.

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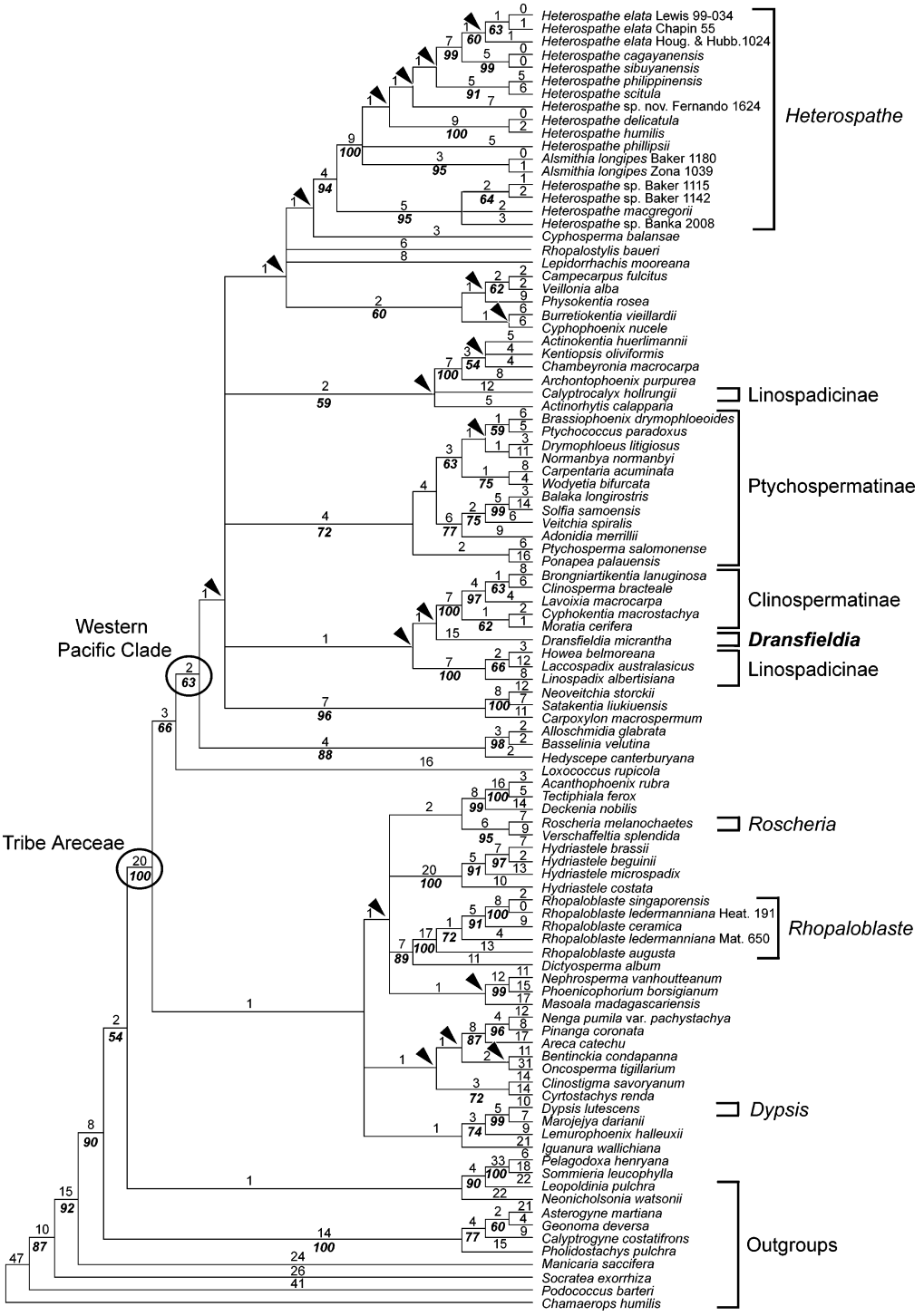

FIG. 3. Phylogeny of tribe Areceae based on simultaneous analysis of *PRK* and *RPB2* DNA sequence data (redrawn from Norup et al., submitted) with taxa relevant to the discussion marked. One equally most parsimonious tree (Length 1291, CI 0.53 RI 0.69, RC 0.37) generated by swapping starting trees to completion with Tree Bisection Reconnection (TBR) swapping, saving a maximum of 20,000 trees in total. Starting trees were obtained from 1,000 replicates of random taxon addition, TBR swapping, saving up to 25 trees in each replicate. Arrows indicate nodes that collapse in the strict consensus, numbers above the line indicate branch lengths (DELTRAN, parsimony uninformative characters excluded) and those below in bold italics represent bootstrap support. The monotypic genus *Alsmithia* H. E. Moore, which is nested within *Heterospathe*, has subsequently been recombined as *H. longipes* (H. E. Moore) Norup (Norup 2005). Note also that subtribe Linospadicinae is not resolved as monophyletic.

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