

at apex; pistillode lageniform, swollen at base, surface rugose; stigmode with 4-5 erect papillae or lobes throughout bud stages. Pistillate buds shorter than staminate (Fig. 3k-o), conic-ovoid, subtended by 2 small narrow, curved, imbricate bracts; sepals 3, imbricate, rounded, gibbous, margins finely fimbriate; petals 3, valvate distally, imbricate basally; staminodes 6, very small, deltoid, with very short filaments, surrounding base of pistil; pistil conic-ovoid, unilocular, uniovulate; stigmas 3, virtually sessile, with slightly rounded apices. Fruit (Fig. 3p-t) orange-red at maturity, globose-ovoid, with apical stigmatic remains forming a conical beak, sloping gradually into fruit body; exocarp thin, with very short, stout fibers immediately under the thin orange-red epidermal layer; mesocarp fleshy, orange-yellow when ripe, thin with central bank of fibers running longitudinally through flesh, some forked, the flesh filling grooves between the distinctive, thick, strong, flattened fibers of the outer endocarp (Fig. 3t), these forking 1-4 times, conspicuous in surface view of endocarp; endocarp complex with an inner layer of horizontal fibers. Seed (Fig. 3u,v) terete in median cross section; integument rather thick, firm but soft, the raphe branches sparse, slightly impressed; endosperm homogeneous, embryo basal. Germination adjacent ligular; eophyll simple, bilobed, apices oblique-acute.

Wodyetia bifurcata Irvine sp. nov.

Palma compta 6-15 m alta, caule 20-25 cm diametro, aliquanto lageniformi. Pinnae primariae regulares 90-107, in sectione medio folii 14-17 segmentis divisae; pinnae terminales binatim vel singularis; segmenta 765-950, supra nitida, viridia, infra pallidioria, hebetate-viridia, nitore dilute-albido propter punctuationes numerosas, parvas, alidas, densas, in sicco peluciditas. Gemma staminata filamentis squamis destitutis stylodio leviter curvato, squamis destitutis. Fructus maturus cum calyce 60-65 mm longus, sine calyce 49-57 mm longus, 27-37 mm latus, vestigio

stigmatis 8-10 mm longo. Semen ca. 32 × 22 mm. Typus: Australia, Queensland, *Irvine 2184* (holotypus QRS; isotypi BH, K).

Stem light grey, slightly bottle-shaped, 6-15 m tall, 20-25 cm diam. Leaves 6-10 in the crown, 2.6-3.2 m long; petiole and rachis greenish, adaxially with greyish white, mostly brownish lacerate-peltate scales, abaxially mostly with fringed scales, chafflike ramenta and some lacerate-peltate scales; young leaves densely covered with scales; leaf sheath tubular, 80-120 cm long, light green with greyish white bloom; petiole 29-42 cm long, 5.0-5.6 cm wide, 2.5-3.5 cm deep, adaxially flat-tish distally, slightly concave proximally, abaxially convex, primary pinnae regularly arranged, 90-107, in patterns each side of rachis such as 50/49, 53/54, 44/46, 50-1 terminal-48, mostly divided into numerous secondary segments, parallel to long axis of the pinnae; segments in 2 leaves from different collections numbered 765 and 950, arranged in patterns of 387-1-377 and 480-470 each side of rachis; proximal 1-4 primary pinnae sometimes entire or divided into 1-4 segments; number of segments increasing towards mid-rachis, the primary pinnae nos. 18-24, divided into 11-17 segments, primary pinnae 25-30 divided into 14-11 segments, segments reduced distally with near-terminal pinnae having 3-1 divisions; lamina glossy light green above, paler flat green with faint whitish sheen below; larger pinnae 45-70 cm long, 2.0-4.8 cm wide (midpart); terminal pinnae 12-24 cm long, 2.4-4.0 cm wide at apex, single or paired, slightly cuneate. Inflorescence 75-112 cm long, with 4 orders of branching, 26-31 main laterals plus terminal; rachis light green, scales not conspicuous, but small scattered clusters of flat brown scales occur around bases of buds; peduncle 8-13 cm long, 4.0-4.5 cm wide, 2.0-2.5 cm deep, with 5-6 caducous bracts subtending the first lateral; prophyll ca. 60 cm long immediately prior to splitting, peduncular bract 1 ca.

58 cm long, peduncular bract 2, 1.4 cm long, 3.5 cm wide at base, 1.1 cm wide at shoulder, with short acute apex 2 mm long; other peduncular bracts very small, 1–3 mm long, 3.0–3.2 cm wide; rameal bracts extremely small, either acute or wrinkled wavy tissue. Staminate buds 11 mm long at two-thirds maturity, sepals 5–6 × 3–4 mm; petals cream-green, 9.8–10 × 5 mm; anthers 5.5–6.0 mm long; pistillode lageniform, 8 mm long, base rugose, styloide 5 mm long. Pistillate buds, with sepals 5–6 × 3–4 mm in $\frac{1}{3}$ – $\frac{1}{2}$ mature buds; staminodes 6, small, deltoid with very short filaments at base of pistil; stigmas 3 virtually sessile, apices slightly rounded. Infructescence (mature fruit stage) 75–115 cm long, peduncle 8–13 cm long, 4.8–6.6 cm wide, 2.5–3.0 cm deep, light green. Fruit 49–57 × 27–37 mm, excluding calyx but including remnant stigma, 8–10 mm long (which merges gradually into body of fruit), 60–65 mm long with calyx; mesocarp, 2.5–3.0 mm thick. Seed terete, ca. 32 × 22 mm, embryo 5 mm long at maturity. Eophyll simple bilobed, light glossy green above, pale flat green below, apices oblique truncate-acute. Seedlings 40–60 cm tall, with simple and pinnate leaves, primary pinnae undivided, arranged in patterns of 2/2, 3/2, 3/3 each side of rachis; larger simple bilobed leaflets 17 cm long, lobes 2.1–2.2 cm wide (midlobe), 3.2 cm wide through base of V, apices oblique praemorse; pinnate leaves 36–44 cm long, terminal pinnae 12.5–13.5 × 2.2–2.4 cm (midlobe), apices oblique praemorse; lateral pinnae ca. 14.0 × 1.7 cm (midpart), apices aristate and/or oblique praemorse; proximal pinnae 11.5–15.7 × 1.1–2.3 cm, apices aristate; pinnae glossy light green above, flat pale green with faint white sheen below. Seedlings around 1 m tall, with most primary pinnae each divided into 3 cuneate secondary pinnae, apices praemorse or obliquely praemorse, with distal edge extended into a point 1–2 cm beyond apex; leaves 71–80 cm long, pet-

iole 18–21 cm long, roundish in cross section, with a thin longitudinal groove adaxially, green with slight grey bloom and widely scattered grey-brown scales, which are dense on young leaves; primary pinnae arranged in patterns of 9/9 each side of rachis; proximal pinnae nos. 1–3 divided into 1–3 segments, mid primary pinnae each divided into 3 segments, distal pinnae reduced to 1, terminal pinnae paired; larger secondary pinnae 10.0–11.5 × 5.0–5.7 cm (midpart), 8.3–8.5 cm wide across apex. Seedlings around 2.5 m tall, with most primary pinnae each divided into around 8 cuneate segments; leaves 1.7–1.75 m long, petiole 40–50 × 1.6–1.7 cm, 1.4–1.5 cm deep, flattish, adaxially slightly channeled, abaxially convex, white bloom on both surfaces, with grey-brown scales denser abaxially; primary pinnae in patterns each side of rachis, 25–1–26 and 26–1–26 (terminal pinna single), hence 52 and 53 primary pinnae in all; proximal primary pinnae nos. 1–3 each divided into 1–7 segments, mid primary pinnae each divided into 7–8 segments, distal primary pinnae divided into 3–1 segments; larger segments 21–22 × 2.2–3.0 cm wide (midpart).

Distribution: Australia, N.E. Queensland, confined to the southwest, south and southeast sides of Melville Range, latitude 14° 17' S, longitude 144° 28' E. *Irvine 2184* (holotype QRS; isotypes BH, K), *Hyland 8369, 9757* (QRS). *Habit/Ecology:* *Wodyetia* occurs in open woodland communities consisting of rain forest elements in coarse, loose granite sand, among huge granite boulders, with the main canopy being the palms themselves. Other tree species associated with it are low forms of *Ficus obliqua*, *F. benjamina* (semi-creeping), *Buchanania arborescens*, *Polyalthia nitidissima*, *Myristica insipida*, *Diospyros reticulata* var. *ferrea*, *Cryptocarya bidwilli*, and vines *Capparis* sp., *Cissus* sp. It extends 1–2 km, downstream, along open forest creeks at the foot of the granite boulder hills. Here it

may be found amongst *Eucalyptus polycarpa*, *E. drepanophylla*, *Cochlospermum gillvrayei* and *Bombax ceiba* forest. It appears to be absent from dense closed forest communities in the area. In these communities the palm *Archontophoenix alexandrae* is a prolific upper canopy species. Altitude range is 60–400 m a.s.l. Climatic conditions have a strong seasonally dry component, with drought stress likely to be significant for six months of the year. Annual rainfall is reckoned to be about 1400–1600 mm, confined mainly to 3–4 months of the year, December–March (Summer Wet). Mature fruit is present in October–December, open flowers are likely to be found in December–February. Seed germinates in 2–3 months, coinciding with the wet season, but sporadic germination continues for at least 14 months.

Key Characters of Wodyetia bifurcata Irvine: Stem slightly bottle shaped (Fig. 2), primary pinnae regularly arranged, divided into as many as 11–17 segments. Margins of segments ribbed. Stamens 60–71, filaments and stylodes lacking scales. Mature fruit orange-red, ovoid-globose, 49–57 mm long, 27–37 mm wide, excluding calyx, but including remnant stigma 8–10 mm long. Mesocarp flesh orange-yellow when ripe. Outer endocarp with strongly forking, flattened, tough black fibers. Seed terete, around 32 mm long, 22 mm wide. Seed “shell” covered with wavy, slightly depressed, longitudinally tending fibrous lines, some forking. Endosperm homogeneous.

Acknowledgments

I thank colleagues B. Hyland (initially brought the taxon to my attention), K. Sanderson (map preparation), D. Fitzsimon (field assistance), R. Solly (repeated typing); reviewers of the script, colleague Dr. D. Johnston, Dr. R. Johnston (Queensland Herbarium), and particularly Dr. J. Dransfield (Kew Herbarium), Dr. F. Essig (Univ. S. Florida) and Dr. N. Uhl (Bailey Hortorium, Cornell) for much help in early and late stages of the script, and Dr. P. Sutton and Dr. Athol Chase (Griffith University, Qld.) for help with Aboriginal data and permission to reproduce their map. All provided valuable assistance. Marion Sheehan prepared the superb plate.

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