

## New Species from Kauai Hawaiian Plant Studies 97<sup>1</sup>

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THE THREE FOLLOWING NEW SPECIES are all based on recent collections on Kauai Island by Charles Christensen.

PALMAE

*Pritchardia napaliensis* sp. nov.

Figure 1

DIAGNOSIS HOLOTYPE: Arbores ad 6 m altae sunt, trunco 18 cm diametro, petiolis 1.06 m longis in basi 5 cm latis in apice 13 mm latis tertia basali dense fulve lanatis et marginibus retrorse longe fibrosis parte reliqua pallida cum lepidiis densa tum subglabrata, ligula 1 cm longa hemisphaerica glabra, lamina 85 cm longa parte centrali integra 47 cm longa cum 41 plicis segmentis centralibus in basi partis liberae 20–22 mm latis, lamina supra viridi glabra infra subviridi et in initio cum lepidiis ellipticis membranaceis pallidis fimbriatis et in marginibus obscure badiis lineatis velatis tarde subglabratis, inflorescentia 72 cm longa, bractea vaginata infima 28 cm longa glabra, pedunculo dense hinuleo-colorato lanato, bractea tertia fere ad apicem inflorescentiae attingenti, bracteis superis 15–18 cm longis lanceolatis glabratis, panícula 14 cm longa 12 cm lata, pedunculo dense lanato sed rhachidi et ramis glabris, ramis inferis 6–8 cm longis et cum 3–7 ramulis floriferis, parte supera paniculae cum ramis simplicibus, ramulis florigeris in basi 1 mm diametro, floribus in basi cum pulvino 0.7–1 mm longo doliformi et cum bracteola setacea, floribus inapertis 6 mm longis ellipsoideis, calycibus 3 mm longis et diametro doliformibus cartilagineis subtrun-

catis sed evidente 3-dentatis nervis compluribus paulum evidentis, petalis 4 mm longis 2.2 mm latis deltoidei-ellipticis basi truncata apice subacuto cartilagineis crassis glabris intra valde 5-nervis caducis, circulo connato filamentarum 0.5–0.8 mm exserto apicibus liberis 0.8–1 mm longis subulatis, antheris 2–2.4 mm longis 0.6–0.8 mm latis divergentibus angustiore deltoidei-ellipsoideis pallide luteis sed connectivo obscure badio, apice exserto ovarii conico 12-costato, stylo 2 mm longo tereti, stigmatate breve trifido, infructescentia 15 cm longa et lata paniculata et fere 96 drupas ferrenti eis 17–23 mm longis 14–18 mm diametro nigris obovoideis duris vel tarde exocarpio tenui submolli, mesocarpio 0.5 mm crasso fibroso, endocarpio 0.5 mm crasso pallide badio osseoso, endospermo fere 15 mm longo et 13 mm diametro albo duro oleoso, embryoni cylindrico obliquo 3 mm longo.

DIAGNOSIS OF HOLOTYPE: Trees to 6 m tall; trunk 18 cm in diameter; petioles 1.06 m long, 5 cm wide at base, 13 mm wide at tip, the lower third densely tawny woolly and the margins retrorse long fibrous, the remaining part pale from a close coating of lepidia, finally subglabrate; ligula 1 cm long, hemispheric, glabrous; blade 85 cm long, the central undivided part 47 cm long, with 41 pleats; the central segments are 20–22 mm wide at their disjunction places, the blade green and glabrous above, greenish below and at first covered by pale membranous elliptic fimbriate lepidia with dark-brown lines on the margins, later subglabrate; inflorescence 72 cm long; lowest sheathing bract 28 cm long, glabrous; peduncle densely fawn colored, woolly; the third bracts almost equaling the inflorescence; upper bracts 15–18 cm long, lanceolate, glabrate; panicle 14 cm long, 12 cm wide; peduncle densely woolly, but the rhachis and branches gla-

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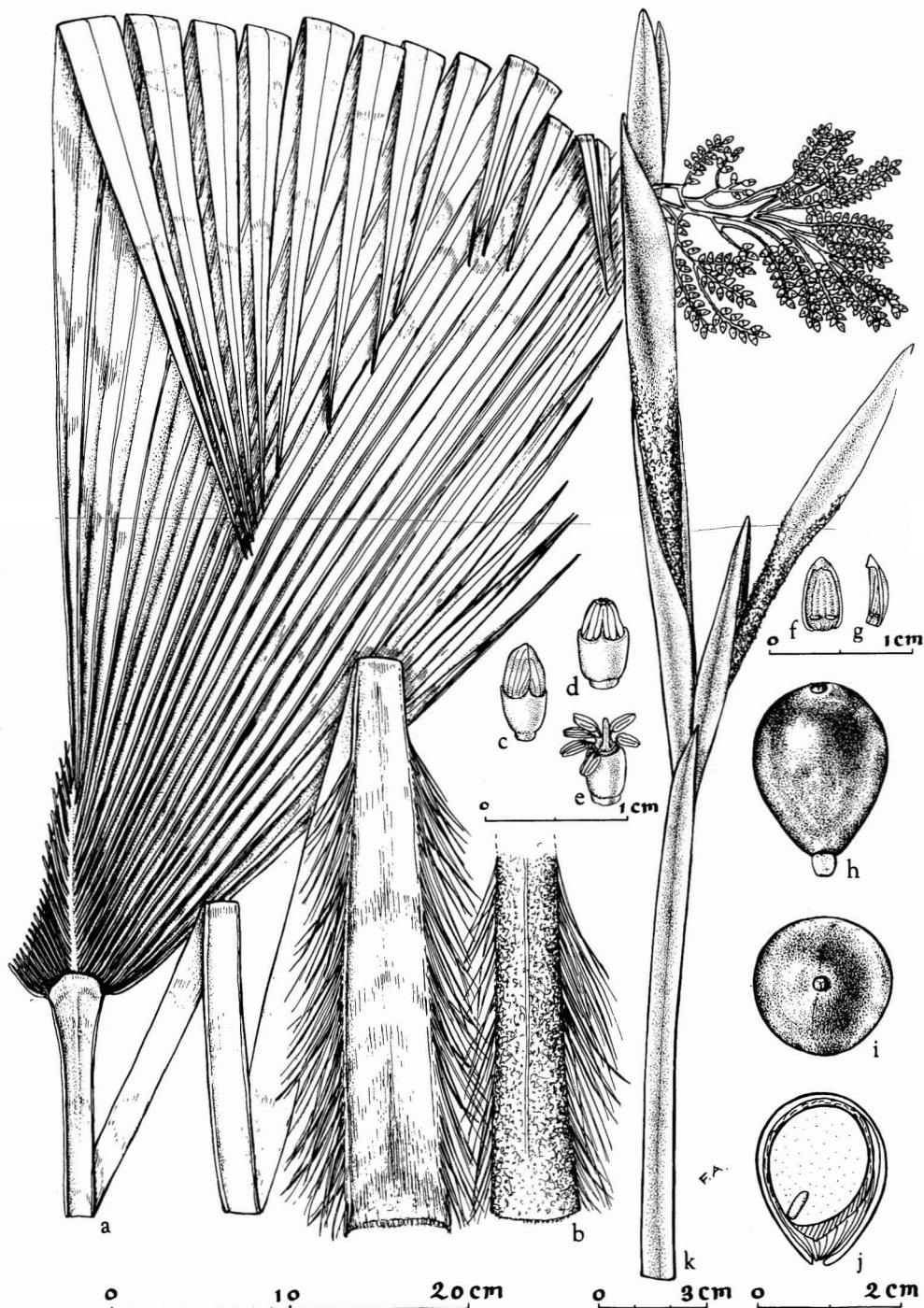


FIGURE 1. *Pritchardia napaliensis* St. John; a-g, k from holotype; h-j from Christensen 64. a, leaf,  $\times \frac{1}{4}$ ; b, petiole,  $\times \frac{1}{4}$ ; c, bud,  $\times 2$ ; d, e, flower with stamens,  $\times 2$ ; f, g, petals  $\times 2$ ; h, i, drupe,  $\times 1$ ; j, drupe, longitudinal median section,  $\times 1$ ; k, inflorescence,  $\times \frac{1}{2}$ .

brous, the lowest branches 6–8 cm long and with 3–7 floriferous branchlets; the upper part of the panicle has simple branches; floriferous branchlets 1 mm in diameter at base; each flower seated on a 0.7–1 mm barrel-shaped pulvinus, and with a setaceous bracteole; flowers unopened 6 mm long, ellipsoid; calyx 3 mm long and in diameter, barrel-shaped, cartilaginous, yellowish, subtruncate but perceptibly 3-toothed, the several nerves barely visible where they converge to the calyx teeth; petals 4 mm long, 2.2 mm wide, deltoid elliptic, the base truncate, the apex subacute, cartilaginous, thick, glabrous, within strongly 5-nerved; filament ring exerted 0.5–0.8 mm beyond the calyx and funnellform; free filament tips 0.8–1 mm long, subulate; anthers divergent, 2–2.4 mm long, 0.6–0.8 mm wide, very narrowly deltoid-ellipsoid, pale yellowish, with a dark-brown connective; ovary with the exposed conical tip 12-ribbed; style 2 mm long, terete; stigma shortly trifid; infructescence 15 cm long and wide, paniculate, bearing about 96 drupes, these 17–23 mm long, 14–18 mm in diameter, when ripe black, obovoid, hard, or at length the thin exocarp somewhat soft; mesocarp 0.5 mm thick, fibrous; endocarp 0.5 mm thick, light brown, bony; endosperm about 15 mm long and 13 mm in diameter, white, oily, hard; embryo an oblique cylindrical plug 3 mm long.

EXPANDED DESCRIPTION: Trunk 18–20 cm in diameter; bark pale yellow-brown; inflorescence of 3 panicles, the central one stronger and earlier; calyx green below, the margin greenish yellow, the 3 calyx teeth dark brown.

HOLOTYPE: Hawaiian Islands, Kauai Island, Na Pali Coast, second gulch from east side of Hoolulu Valley, dryland forest with *Ochrosia*, *Aleurites*, *Psychotria*, *Cordyline*, 520 ft alt., 1 August 1976, *Charles Christensen* 39 (BISH).

SPECIMENS EXAMINED: Hawaiian Islands, Kauai Island, at the type locality, 560 ft alt., 25 September 1976, fruiting specimen, the *Pritchardia* population 80–100 trees, *C. Christensen* 64 (BISH); Hoalulu Valley, Hanakapiai, moist lower forest, steep slope in gulch, 500 ft alt., 1 January 1948, *H. St.*

*John, E. J. Britten, & L. Frederick* 23,185 (BISH).

DISCUSSION: The closest relative of *Pritchardia napaliensis* is *P. remota* Becc. of Nihoa Island, a species with the flower buds 8–9 mm long, 4 mm in diameter; petals 6 mm long; fruit 19–20 mm long, 18–19 mm in diameter, globose ovoid, greenish brown; pericarp 2 mm thick; blade below with remote minute punctiform microlepidia; petioles glabrous. *Pritchardia napaliensis* has the flower buds 6 mm long, 3 mm in diameter; petals 4 mm long; fruit 17–23 mm long, 14–18 mm in diameter, obovoid, black; pericarp 0.7–1.2 mm thick; blade below with pale membranous elliptic fimbriate lepidia with dark-brown lines on the margins, later subglabrate; petioles with the lower third densely tawny woolly and the margins retrorse long fibrous.

The new epithet is formed from the name of the type region, the cliff-bound Na Pali Coast, as *napali*, and *ensis*, the Latin adjectival place ending.

#### URTICACEAE

#### *Neraudia pyramidalis* sp. nov.

##### Figure 2

DIAGNOSIS HOLOTYPE: Frutex feminalis 1.3 m altus est, ramis glabris, ramulis 1–4 mm diametro teretibus, cortice pallide badio laevi lucido, internodis 5–15 mm longis, nodis paulum incrassatis, cicatricibus foliorum 3 mm latis hemisphaericis stramineis subadscendentibus, cicatricibus fascicularum 3, foliis alternatis, petiolis 5–8.2 cm longis glabris gracilibus supra canaliculatis, laminis 7.5–13 cm longis 4–7 cm latis lancei-ovatis (vel lanceolatis) integris basi rotundata apice acuminato subtiliter chartaceis supra obscure viridibus in aspectu glabris sed remote adpresse albi-pilosulis infra viridibus in aspectu glabris sed in nervis principalibus remote adpresse pilosulis valde palmatim trinervis marginibus adpresse adscendente minute pilosuli-ciliatis, floribus femineis sessilibus, calycibus 3.5 mm longis rostro 0.8 mm longo incluso ellipsoideis dense adpresse adscen-

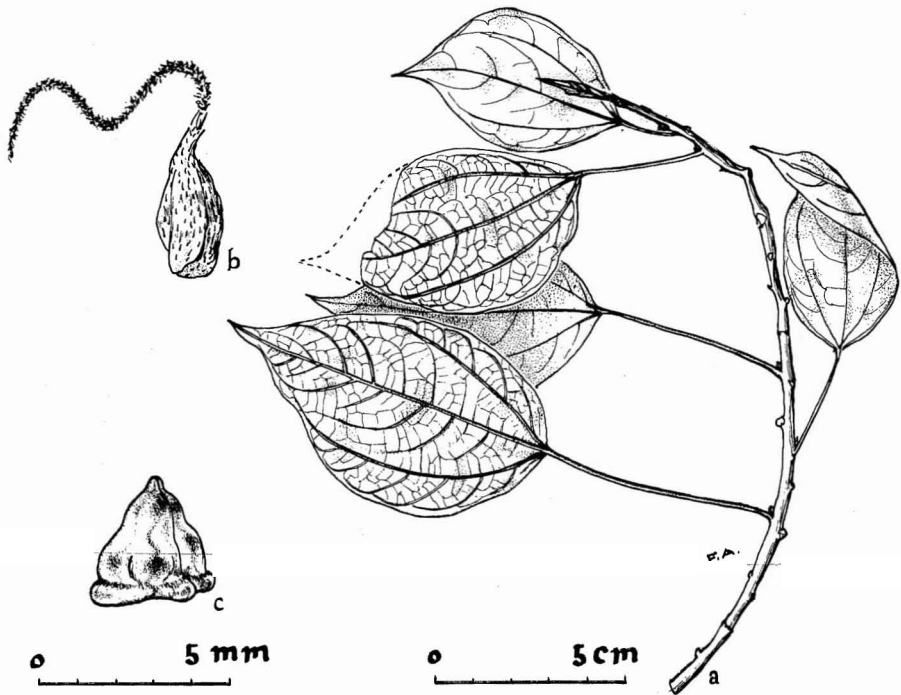


FIGURE 2. *Neraudia pyramidalis* St. John, from holotype. *a*, habit,  $\times \frac{1}{2}$ ; *b*, pistillate flower,  $\times 5$ ; *c*, achene,  $\times 5$ .

dente albi-pilosulis, stylo 7–10 mm longo puberulo in toto fertili, achaeneis 3–3.2 mm longis in basi 2.8–3 mm latis pyramidalibus osseosis stramineis lucidis tertia supera angustata pyramidalis parte basali pyramidalis subrotundata margini basali rotundato et involuto.

**DIAGNOSIS OF HOLOTYPE:** Female shrub 1.3 m tall; branches glabrous; branchlets 1–4 mm in diameter, terete; bark pale brown, smooth, shining; internodes 5–15 mm long; nodes slightly enlarged; leaf scars 3 mm wide, hemispheric, stramineous, slightly ascending; bundle scars 3; leaves alternate; petioles 5–8.2 cm long, glabrous, slender, channeled above; blades 7.5–13 cm long, 4–7 cm wide, lance ovate (or lanceolate), entire, the base rounded, the apex acuminate, thin chartaceous, above dark green, appearing glabrous, but remotely appressed white pilosulous, below green, appearing glabrous, but remotely appressed pilosulous on the principal veins, strongly palmately trinerved, the margins appressed ascending

minute pilosulous ciliate; pistillate flowers sessile; calyx 3.5 mm long, including the 0.8 mm beak, ellipsoid, densely white appressed ascending pilosulous; style 7–10 mm long, puberulous receptive on all sides; achenes 3–3.2 mm long, 2.8–3 mm wide at base, pyramidal, bony, stramineous, shining, the apical portion in the upper third slightly narrowed and pyramidal, the basal portion pyramidal, slightly rounded, and the basal rim rounded and involute.

**HOLOTYPE:** Hawaiian Islands, Kauai Island, Mahanaloa Valley, in deep shade, near moisture, 2000 ft alt., 2 February 1977, Charles Christensen 126 (BISH).

**DISCUSSION:** The closest relative of this new species is *Neraudia kauaiensis* (Hbd.) Cowan, also of the Waimea drainage in western Kauai, a species with the pistillate flowers with the calyx with mostly erect hairs; achenes 2 mm long, the thin expanded basal rim 2 mm in diameter, the body pyramidal; branchlets spreading pilosulous; petioles



densely spreading pilosulous; blades above with hairy tufts in the principal veins axils, but below generally spreading pilosulous and shaggily so on the veins. *Neraudia pyramidalis* has the pistillate flowers with the calyx white appressed pilosulous; achenes 3–3.2 mm long, 2.8–3 mm in diameter at base, the base not distended, the body pyramidal, but the upper third narrowed and narrower pyramidal; stems glabrous; petioles glabrous; blades above remotely appressed pilosulous and below remotely appressed pilosulous on the principal veins.

The new epithet is the Latin adjective *pyramidalis*, meaning “pyramidal,” and it refers to the shape of the achenes.

#### APOCYNACEAE

#### *Pteralyxia elliptica* sp. nov.

##### Figure 3

DIAGNOSIS HOLOTYPE: Arbores glabrae usque ad 15 m altae sunt, basi 3.3 m diametro, succo lactoso resinoso, corticibus ramorum badiis laevibus lenticelis pallidis rotundatis, internodis 5–12 mm longis, ramulis foliosis 3–5 mm diametro, ramis 5–8 mm diametro, cicatricibus foliorum 3–7 mm latis scutateis stramineis prostratis, cicatrici fascicularum solitario rotundato centrali, petiolis 2–3 cm longis gracilibus supra anguste canaliculatis, laminis 5–15 cm longis 2.8–8.3 cm latis subcoriaceis ellipticis vel ellipticobovatis integribus planis apice obtuso rotundato vel paulum subacuminato et late obtuso basi cuneata et breve decurrenti supra obscure viridibus nitidis infra viridibus midnervo subluteo et prominenti nervis secundariis 25–40 in dimidio quoque subparallelis divergentibus paulum adscendentibus, cymis in flore 3–4 cm longis multifloriferis, pedunculo 15–20 mm longo, pedicellis 4–5 mm longis, calycibus 3 mm longis lobis 1 mm longis late ovatis marginibus hyalinis pallidis et sparse minute puberuli-ciliatis, floribus sublutei-viridibus, tubo corollae 11–12 mm longo, 1.3 mm in diametro gracili recto, 5 lobis corollae 1 mm longis late ellipticis divergentibus tum reflexis, 5 antheris

cum filamentis ad tubum corollae per 10 mm adnatis, apicibus liberis 0.7 mm longis et in linea hirsutis, antheris 1.3 mm longis lanceoloideis, 2 ovarii semilanceoloideis, stylo unito 5 mm longo filiformi, stigmatibus 12 mm longo lanceoloideo, plerumque solum fructum unum in cyma ferrenti, drupis geminatis 45–50 mm longis 25–27 mm latis 23–25 mm crassis ellipsoideis lutei-rubris, endocarpio 43 mm longo 17 mm lato 14 mm crasso subcurvate oblancheoloideo in superficie cum fibris longitudinalibus multis, liris lateralibus humilibus, liris centralibus 4–5 mm altis ad apicem fenestratis, lira infera in aristam hamatam terminanti.

DIAGNOSIS OF HOLOTYPE: Glabrous trees up to 15 m in height, the base 3.3 m in diameter; sap milky resinous; branches with the bark brown, smooth, and with pale roundish lenticels; internodes 5–12 mm long; leafy branchlets 3–5 mm in diameter; branches 5–8 mm in diameter; leaf scars 3–7 mm wide, shield-shaped, stramineous, flush; bundle scar single, large rounded central; petioles 2–3 cm long, slender, and narrowly channeled above; blades 5–15.5 cm long, 2.8–8.3 cm wide, subcoriaceous, elliptic or elliptic obovate, entire, flat, the apex obtuse, rounded or slightly subacuminate and broadly obtuse, the base cuneate and shortly decurrent, above shiny dark green, below green, the midrib yellowish and prominent, secondary veins 25–40 in each half, nearly parallel, divergent and only slightly ascending; cymes in flower 3–4 cm long, with numerous flowers; peduncle 15–20 mm long; pedicels 4–5 mm long; calyx 3 mm long, the lobes 1 mm long, broadly ovate, the margins hyaline, pale, and sparsely minutely puberulous ciliate; flowers yellowish green; corolla tube 11–12 mm long, 1.3 mm in diameter, slender, straight; 5 corolla lobes 4 mm long, broadly elliptic, spreading, then reflexing; 5 anthers with their filaments adnate to the corolla tube for 10 mm; free filament tips 0.7 mm long, with a hirsutulous line; anthers 1.3 mm long, lanceoloid; 2 ovaries semilanceoloid; common style 5 mm long, filiform; stigma 12 mm long, lanceoloid; usually only one flower in each cyme setting fruit; paired drupes 45–50 mm long, 25–27 mm wide,

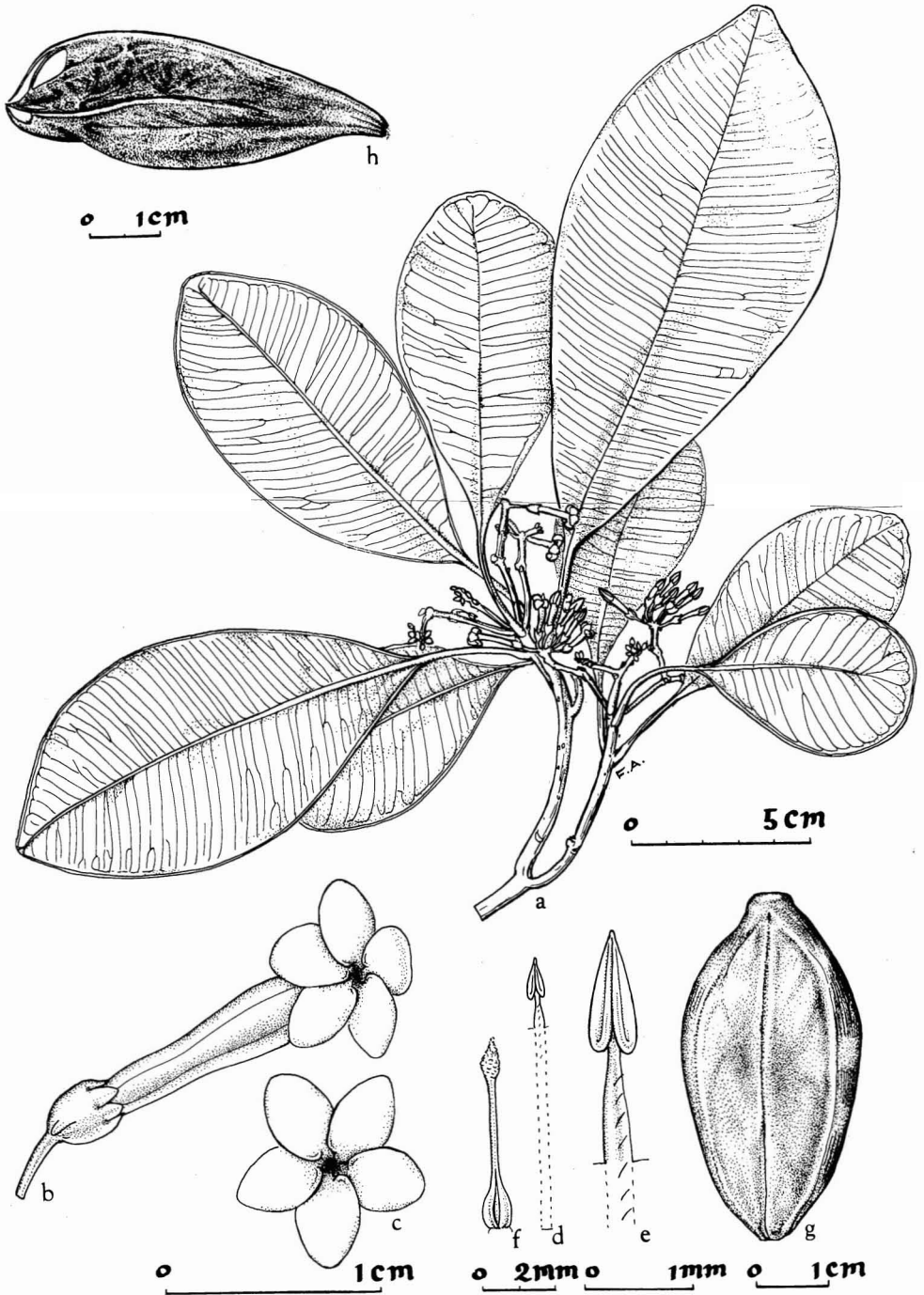


FIGURE 3. *Pteralyxia elliptica* St. John, from holotype. *a*, habit,  $\times \frac{1}{2}$ ; *b*, *c*, flower,  $\times 3$ ; *d*, stamen,  $\times 5$ ; *e*, free part of stamen,  $\times 5$ ; *f*, pistil,  $\times 5$ ; *g*, drupe,  $\times 1$ ; *h*, stone,  $\times 1$ .

23–25 mm thick, ellipsoid, colored yellow-red no. 0 (Munsel chart, Collins Encyclopedia 7:5, 1976); endocarp 43 mm long, 17 mm wide, 14 mm thick, slightly curved oblanceoloid, with numerous longitudinal fibers in the surface, lateral crests reduced to mere ridges; 2 central crests 4–5 mm high, fenestrate at apex, the lower ridge ending in a hooked bristle.

EXPANDED DESCRIPTION: Petioles 2–4 cm long; blades 5–23 cm long, 2.8–9 cm wide.

HOLOTYPE: Hawaiian Islands, Kauai Island, Waioli, 120 yds east of Waioli-Waipā Ridge crest, 1000 ft elev., wet forest, with *ohia*, *ti*, *ieie*, 27 July 1977, Charles Christensen 273 (BISH).

SPECIMENS EXAMINED: Hawaiian Islands, Kauai Island, Waioli-Waipā Ridge, 30 yds east of crest, wet forest, 1050 ft elev., 27 April 1977, Christensen 194 (BISH).

DISCUSSION: *Pteralyxia elliptica* is most closely related to *P. kauaiensis* Caum, a species with the blades 11–32 cm long, 3.5–8 cm wide, spatulate; corolla tube 7–7.5 mm long, the lobes 3 mm long; drupes 46 mm long, 16 mm wide, red; endocarp narrowly oblanceoloid, the central crests 2.5–3 mm high. *Pteralyxia elliptica* has the blades 6–23 cm long, 4–9 cm wide, elliptic obovate to cuneate obovate; corolla tube 11–12 mm long, the lobes 4 mm long; drupes yellow-red, 45–50 mm long, 25–27 mm wide, 23–25 mm thick, ellipsoid; endocarp oblanceoloid, 42–52 mm long, 16–19 mm wide, 13–14 mm thick, the central crests 4–5 mm high. Its leaves are similar to those of *P. macrocarpa* (Hbd.) K. Schum.

The new epithet is the Latin adjective *elliptica*, meaning “elliptic,” and it is given with reference to the usual leaf shape of the species.