

New Species of Hawaiian Plants Collected by David Nelson in 1779 Hawaiian Plant Studies 52¹

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THE FIRST SCIENTIFIC PLANT COLLECTION in the Hawaiian Islands was made by David Nelson, gunner and botanist on Captain James Cook's third world-voyage. All the specimens were obtained on a single 5-day expedition that attempted to climb and explore Mauna Loa. Also in the party were Marine Corporal John Ledyard, Simeon Woodruff, Robert Anderson, Midshipman George Vancouver, and two native guides.

Nelson collected more than 130 specimens, and they were dried, and safely carried to London. They were given to Sir Joseph Banks who later deposited them in the British Museum of Natural History. Subsequently they were given manuscript names by Daniel Solander, and by his successor Robert Brown. No list of them was kept, and they were filed in the herbarium under these unpublished names.

During the 2 centuries since this first collection of Hawaiian plants was gathered, only a half-dozen or so of them were noticed in print, by Bentham, Aiton, Seemann, Dunal, and Sherff.

The writer spent 4 weeks in 1950 and 1 in 1975 combing the British Museum herbarium in search of these historic specimens. In a subsequent article he will enumerate all the specimens so located, a goodly total, but probably not a complete one. Below are published those that still seem to be undescribed. Evidently they also are now extinct.

Cordial thanks are due to Dr. R. S. Cowan who in 1953 aided the author by careful observations and drawings of a number of the plants here described as new species.

URTICACEAE

Neraudia Cookii sp. nov.

Figure 1

DIAGNOSIS HOLOTYPI: Frutex dioica est, planta mascula cum ramulis 0.8-4 mm diametro, nodis

incrassatis, internodis 4-24 mm longis, cortice pallide rubri-badio laevi in parte pilosi in sicco sulcato, cicatricibus foliorum 1 mm altis suborbicularibus-scutelliformis plerumque a reliquis inflorescentiae obscuratis, ramulis foliosis 7-15 cm longis 7-15 foliis ferrentibus, novellis albi-pilosulis, petiolis 4-16 mm longis dense albi-pilosulis, laminae 3.3-8 cm longis 5.5-22 mm latis firme chartaceis lineari-lanceolatis apice longe attenuato basi obtusa vel breve cuneata supra obscure viridibus dense albi-papillosis et remote adpressi-pilosis infra albi-pilosis sed in costa et nervis secundariis subadpressi-pilosis, nodis floriferis bracteis floris 0.3-0.5 mm longis scariosis extra et in marginibus puberulentibus, floribus masculis multis aggregatis axillaribus, alabastris ovoideis acuminatis, calycibus 2-2.2 mm longis subviridibus adpressi-puberulentibus intra glabris 1/3-1/2 partitis, lobis 4 ovatis acuminatis, staminibus 4 in lobis oppositis inflexis, filamentis 2 mm longis, antheris 0.6-0.8 mm longis ellipticis in suturo laterali dehiscentibus, pistilodio rudimentario minuto lanato, plantis femineis ignotis.

DIAGNOSIS OF HOLOTYPE: Dioecious shrub (or tree?); branchlets seen 21-26 cm long; 0.8-4 mm in diameter, with the nodes enlarged, salient; internodes 4-24 mm long; bark pale reddish brown, smooth, but with some persisting pilosity, on drying shrinking slightly and forming longitudinal ridges; leaf scars 1 mm high, suborbicular-shield-shaped, largely concealed by the remnants of the inflorescence; branchlets leafy for 7-15 cm, bearing 7-15 leaves; young branchlets spreading white pilosulous; petioles 4-16 mm long, densely white pilosulous; blades 3.3-8 cm long, 5.5-22 mm wide, entire, firm chartaceous; linear-lanceolate, the apex long attenuate, the base obtuse or very short cuneate, above dark green, closely white papillose and remotely appressed pilose,

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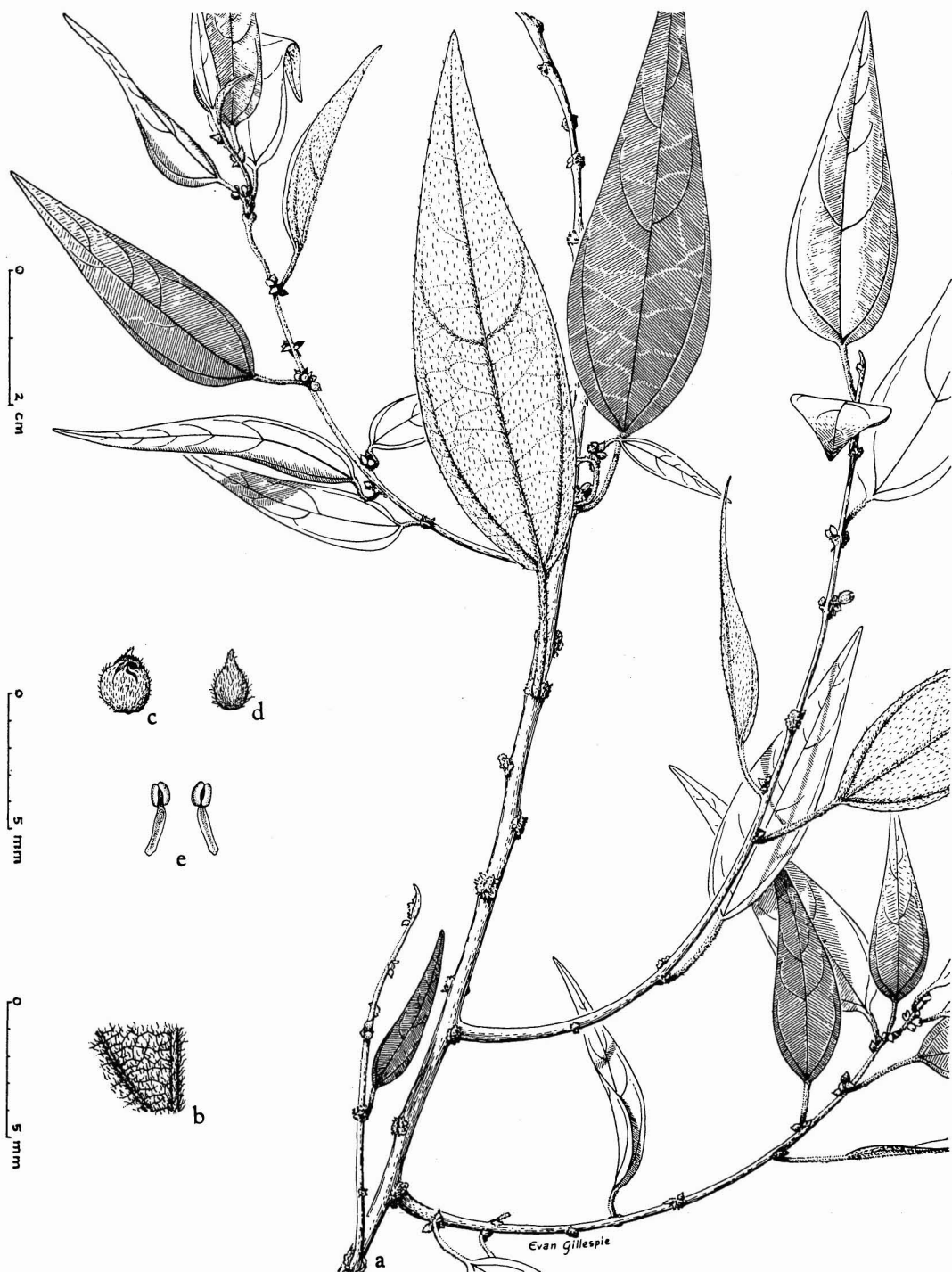


FIGURE 1. *Neraudia Cookii* St. John, from holotype. *a*, habit of male plant, $\times 1$; *b*, leaf underside, $\times 4$; *c*, *d*, staminate flowers, $\times 4$; *e*, stamens, $\times 4$.

below subappressed pilose on the midrib and secondaries, white pilosulous generally on the surface, the distinctive network of veins formed by the tertiary ones; nodes floriferous, the many flowers subtended by scarious bracts 0.3–0.5 mm long, puberulent on back and margin; pedicels 0.5–1.5 mm long, puberulent, persistent; staminate flowers in close axillary clusters; buds ovoid, acuminate, the calyx greenish, 2–2.2 mm long, appressed puberulent, within glabrous, cleft 1/3–1/2 way into 4 lobes, these ovate, acuminate; stamens 4, opposite the calyx lobes, sharply inflexed and bent double in bud; filaments 2 mm long; anthers 0.6–0.8 mm long, elliptic, dehiscent by a lateral suture; pistilode a minute rudiment, woolly tufted; pistillate plants unknown.

HOLOTYPE: Sandwich Islands [Kona, Hawaii Island], *Dav. Nelson* (BM).

DISCUSSION: This early collection was filed in the British Museum of Natural History as *Urtica* sp., and there was no indication that any botanist had tried to identify it more precisely. It is a full sheet of three good and flowering branches with abundant staminate flowers. Its growth habit and capitate axillary flowers at first suggested *Pipturus*, but the dioecious flowers and entire leaves proved it to be a species of *Nerandia*. That genus has recently been closely studied by Cowan (1949). It is to be regretted that the specimen at hand furnishes only staminate branches. It might be cautious to hold this treatment in manuscript, awaiting further and more complete collections, but unfortunately there is little chance of obtaining them. Cook's voyage was the one that discovered the islands, and the vegetation then was virgin down to the seashore or to the edge of the plantations of the Hawaiians. Soon afterwards, in 1792, cattle, sheep, and goats were freed on the islands, and they caused much destruction of the vegetation. The Kona slope of Mauna Loa, and especially near Kealakekua Bay, has long been developed as a modern settlement, with coffee plantations and cattle ranches, and the abundant feral goats still range widely there. This region has been explored by almost all of the botanists who have worked in Hawaii, without this easily noticeable shrub being re-discovered. It is improbable that it will be found again; hence, it is here described as new, even

though the female plants of the species are unknown.

The most similar species, *N. ovata* Gaud., also of Hawaii Island, can be distinguished by having the blades 2–6.5 cm wide, broadly ovate or oval, thin, the apex acuminate (or acute), below densely puberulent; staminate calyx 3–4.5 mm long, appressed and erect pilosulous and with mingled short erect uncinat hairs. On the other hand *N. Cookii* has the blades 0.5–2.2 cm wide, linear-lanceolate, the apex long attenuate, firm chartaceous; staminate calyx 2–2.2 mm long, appressed puberulent.

This species is named in honor of Captain James Cook, officer of the British Navy, and scientific explorer extraordinary, who, on receipt from Corporal John Ledyard of a note suggesting an excursion to climb and explore the distant peak, Mauna Loa, dispassionately read the letter, and approved the project. He ordered the excursion to be made, and even detailed Ledyard and Nelson as members of the party to make the climb. This excursion allowed Nelson to make the first collection of Hawaiian plants, including this one.

PIPERACEAE

Peperomia plinervata sp. nov. (subgen. *Hawaiiana*)

Figure 2

DIAGNOSIS HOLOTYPI: Caulibus plus 3 dm altis glabris, internodiis 7–13.5 cm longis, foliis 3–4-verticillatis, petiolis 10–27 mm longis supra canaliculatis sparse pilosulis pilis 0.4–0.5 mm longis adscendentibus, laminis 8–12 cm longis 1.8–3 cm latis carnosis sed in sicco crasse chartaceis anguste ellipticis apice longe attenuato acuto basi sensim cuneata decurrenta supra in nervis sparse pilosulis infra modice et omnino pilosulis pilis 0.4–0.5 mm longis arcuatis paginis superis in sicco subnigris infra pallidioribus nervis supra obscuris infra nervis primariis et secundariis validis salientibus 5-plinervatis jugo primario proxime basi jugo secundario 1–2 cm e basi distantio, spicis pluribus in axilibus superis 4.5–9 cm longis 1.2 mm diametro, pedunculis 6–13 mm longis pilosulis vel sparse pilosulis pilis 0.5 mm longis arcuatis, rhachidibus glabris, bracteis 0.3–0.4 mm diametro orbicularibus

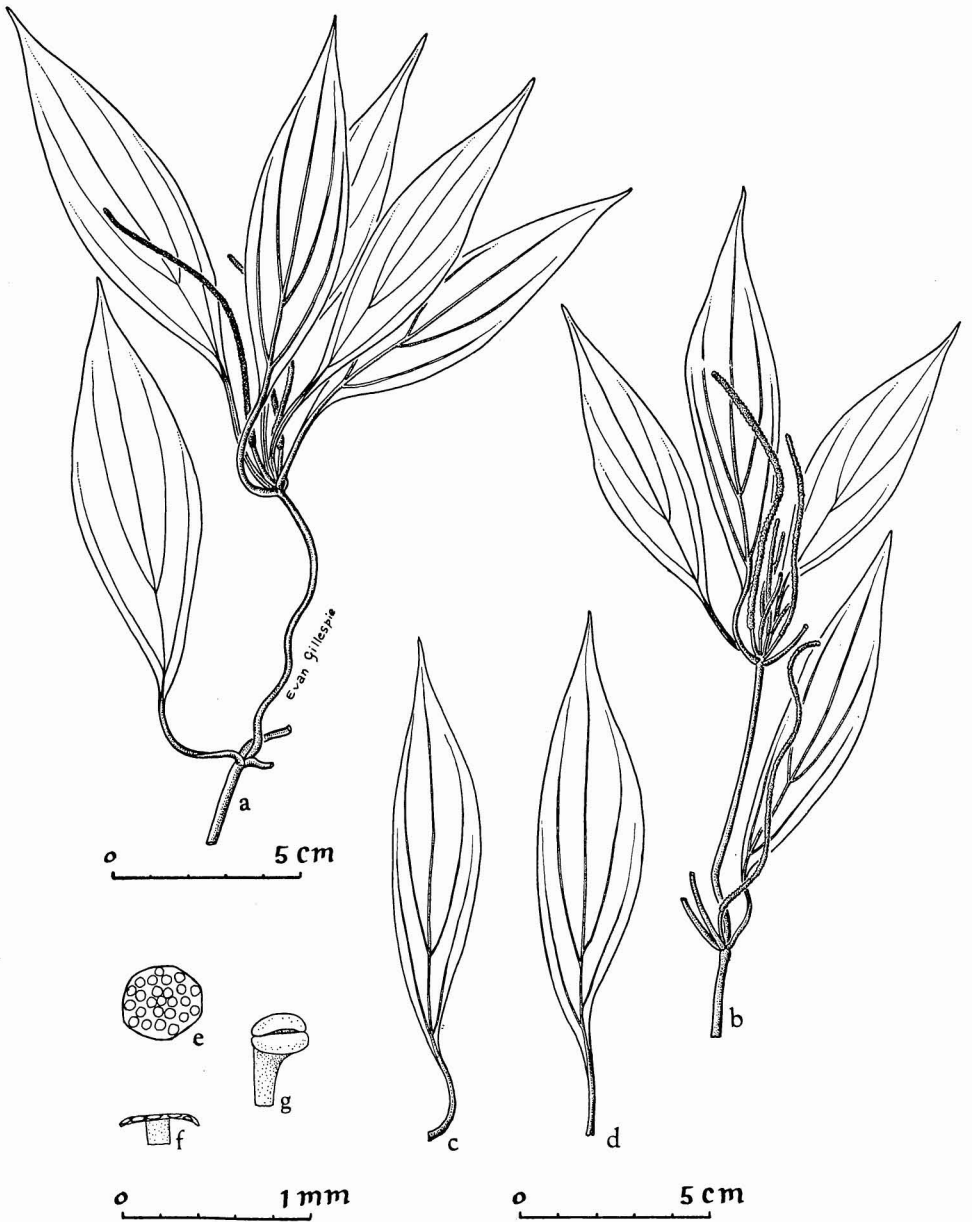


FIGURE 2. *Peperomia plinervata* St. John, from holotype. *a, b*, habit, $\times \frac{1}{2}$; *c, d*, leaves, $\times \frac{1}{2}$; *e, f*, floral bract, $\times 25$; *g*, stamen, $\times 25$.

peltatis lutei-punctatis, antheris 0.2–0.3 mm longis late ellipticis peltatis, ovariis ovoideis sessilibus, stigmatibus binis punctis elevatis in fossa vadosa apicali occurrentibus, fructibus incognitis.

DIAGNOSIS OF HOLOTYPE: Stems more than 3 dm tall, glabrous; internodes 7–13.5 cm long; leaves whorled, 3–4 at a node; petioles 10–27 mm long, canaliculate on the upper side, sparsely pilosulous, the hairs 0.4–0.5 mm long, curving

towards the leaf apex; blades 8–12 mm long, 1.8–3 cm wide, fleshy but when dried thick chartaceous, narrowly elliptic, the apex long tapering, acute, the base gradually cuneate decurrent, above sparsely pilosulous on the veins, below moderately and uniformly pilosulous, the hairs 0.4–0.5 mm long, arcuate, the upper surface drying almost black, the lower paler, venation obscure above, but below the midrib and secondary veins strong and salient, 5-plinerved, the first pair of laterals just above the base, the second pair stronger, separating at 1–2 cm from the leaf base; spikes numerous in the upper axils, the mature ones 4.5–9.5 cm long, about 1.2 mm in diameter (when dried); peduncles 6–13 mm long, pilosulous, sometimes sparsely so, the hairs 0.5 mm long, arcuate; rhachis glabrous; bracts 0.3–0.4 mm in diameter, round, peltate, yellow punctate; anthers 0.2–0.3 mm long, broadly elliptic in outline, peltate; ovaries ovoid, sessile; stigmas divided, appearing as two darker, raised points in the base of a shallow apical depression; fruits not seen.

HOLOTYPE: Sandwich Islands [Kona, Hawaii Island], *Dav. Nelson* (BM).

DISCUSSION: This new species is a member of the subgenus *Hawaiiana* of Yuncker, and it is most nearly related to *P. Macraeana* C. DC., which occurs on the eastern side of Hawaii and on Maui, and is distinguished by having its stems densely appressed hirtellous above; petioles 1–4 cm long, densely appressed hirtellous; blades 5–9.7 cm long, 2–6 cm wide, elliptic-lanceolate or broadly so to obovate, above sparingly hirtellous or only at base or only on the nerves, below densely brown hirtellous, especially along the nerves, apex acute to acuminate, base acute, venation mostly 7-plinerved; peduncle appressed hirtellous or subglabrate; spikes 2–7 cm long; and the bracts about 0.5 mm broad. On the other hand, *P. plinervata* has the stems glabrous; petioles 1–2.7 cm long, sparsely curved pilosulous; blades 8–12 cm long, 1.8–2.3 cm wide, narrowly elliptic, above sparsely pilosulous on the veins, below moderately and uniformly pilosulous, the apex long tapering acute, the base gradually cuneate decurrent, the venation 5-plinerved; peduncles pilosulous or sparsely so; spikes 4.5–9.5 cm long; and the bracts 0.3–0.4 mm in diameter.

There are no known subsequent collections of this species since the original ones, made on the western side of Mauna Loa in 1779 by David Nelson. Since the region has been well explored during the last hundred years, it appears that the new species here described is already extinct.

The new epithet is derived from the botanical term *plinerved* (Yuncker 1933: 11), but this is of obscure derivation. It is perhaps formed from the Greek *pleion*, more; and certainly from the Latin adjective *nervatus*, nerved.

URTICACEAE

Ureria konaensis sp. nov.

Figure 3

DIAGNOSIS HOLOTYPE: Arbor 6.6 m alta dioica est, exemplo masculo cum ramulis hirsutulis pilis 0.4 mm longis, petiolis 1.5–5 cm longis hirsutulis canaliculatis, laminis 8–10 cm longis 2.5–5.5 cm latis crasse chartaceis ovatis apice acuminato basi rotundata vel cordata margini crenato sed ad basim integro supra glabris infra hirsutulis et in nervis cum pilis minutis, nervis omnino prominentibus nervis secundariis 6–9 in dimidio quoque, inflorescentia mascula 2–5 cm longa, pedunculis 1.5–3 cm longis, axibus sparse puberulis pilis 0.2 mm longis, floribus masculis sessilibus 1.2 mm longis 2 mm diametro depressi-globosis glabris, 5 lobis calycis ovatis, staminibus 5 in alabastro inflexis, antheris 0.6–0.7 mm longis 0.6–0.8 mm latis, filamentis 0.5 mm longis.

DIAGNOSIS OF HOLOTYPE: Tree 6.6 m tall, dioecious; staminate plant with hirsutulous branchlets, the hairs 0.4 mm long; petioles 1.5–5 cm long, hirsutulous, channeled above; blades 8–10 cm long, 2.5–5.5 cm wide, thickish chartaceous, ovate, the apex acuminate, the base rounded to cordate, the margins crenate except at base, glabrous above, hirsutulous below and the veins with minute hairs, the venation prominent on both surfaces, the secondary veins in 6–9 pairs; staminate inflorescences 2–5 cm long; peduncle 1.5–3 cm long, the axes sparsely puberulous with hairs 0.2 mm long; staminate flowers sessile, 1.2 mm long, 2 mm in diameter, oblate globose, glabrous, 5 calyx lobes ovate; the 5 stamens inflexed in the bud; anthers

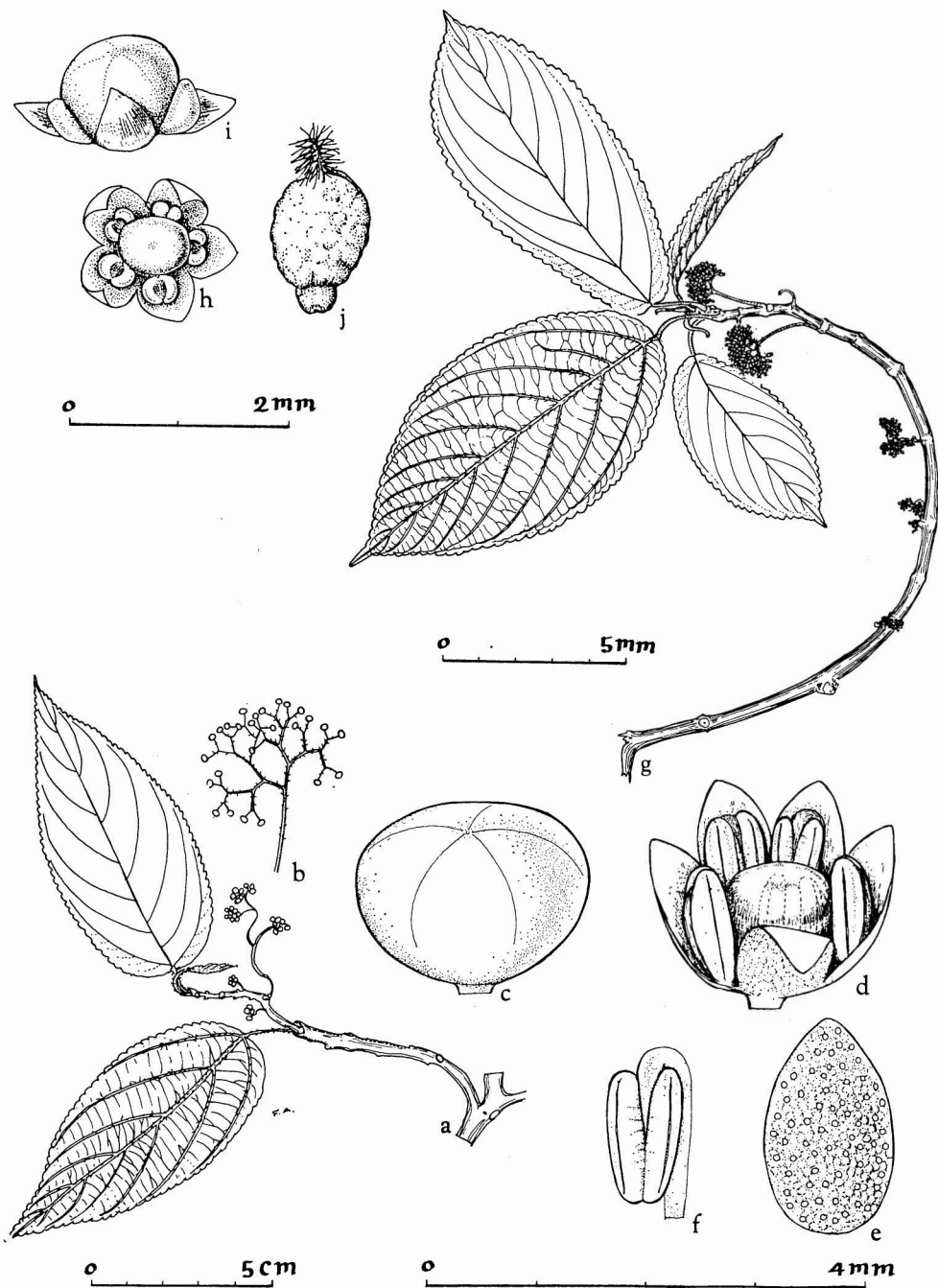


FIGURE 3. *Urera konaensis* St. John, from holotype. *a*, habit of male plant, $\times \frac{1}{2}$; *b*, staminate inflorescence, $\times \frac{1}{2}$; *c*, staminate bud, $\times 15$; *d*, staminate flower, $\times 15$; *e*, staminate sepal, $\times 15$; *f*, stamen, $\times 15$; *g*, habit of female plant, $\times \frac{1}{2}$; *h*, pistillate flower, $\times 15$; *i*, fruit, $\times 15$; *j*, pistil, $\times 15$.

0.6–0.7 mm long, 0.6–0.8 mm wide, filaments 0.5 mm long.

SUPPLEMENTARY DESCRIPTION: Pistillate plants with the branchlets sparsely hirsutulous towards the tip; petioles sparsely hirsutulous; blades sparsely hirsutulous below; pistillate inflorescences 1.5–2 cm long, the axes sparsely puberulent with hairs 0.2 mm long; pedicels 0.5 mm long; pistillate flowers 1.2 mm long, 0.7 mm in diameter, glabrous; 5 sepals ovate, but the margins minutely lacinate at apex; stigma penicillate, exserted; fruit unknown.

HOLOTYPE: Sandwich Isl. [Kona, Hawaii Island], Owhaihee, in sylvis sum[mi] montes, *Dav. Nelson* (BM).

DISCUSSION: *U. konaensis* is most closely related to *U. glabra* (H. & A.) Wedd., var. *mollis* (Wedd.) Wawra, sensu Wedd., non Wawra, a variety found on Mauna Kea, Hawaii, and it has the blades deeply serrate, and the under-surface softly pubescent on nerves and intervals, but the other details are unknown. *U. konaensis* has the blades crenate, the undersurface with the intervals glabrous, the midrib pilosulous, and the secondaries with fewer, shorter hairs.

The holotypic sheet in the British Museum is marked on the back, "Sandwich Isl. Capt. Cook's 2nd & 3rd Voy[ages]." Since the second voyage did not come to Hawaii, it is certain that the collection was made by David Nelson on the third voyage which did so. The specimen was labeled *Hydrangeoides* 2.

The new epithet is formed from the name of the Kona District, on the western side of Hawaii Island, where Nelson made his only collections.

AMARANTHACEAE

Achyranthes Nelsonii sp. nov.

Figure 4

DIAGNOSIS HOLOTYPE: Ramulis quadrangularibus sparse strigulosis deinde glabrescentibus, internodis 3.5–5 cm longis, petiolis 3–6 mm longis marginatis ciliolatis supra glabris infra subadpressi-pilosulis, laminis 15–25 mm longis 14–20 mm latis tenuiter coriaceis obovatis vel late obovatis paginis ambis pilo-

sulis pilis 0.3 mm longis suberectis vel subadpressis nervis obscuris costa infra salienta apice rotundato basi cuneata decurrenta marginibus integris, inflorescentiis 1–1.5 cm longis spicatis sessilibus terminalibus et in ramulis terminalibus, spicis 4–11 mm longis 4–8 mm diametro capitatis vel breve cylindraxis axi albi-pilosi pilis 0.7 mm longis, bractea infima 1.5 mm longa 1 mm lata persistentia ovata concava acuta glabra scariosa 1-nervata, braceolis florum binis 1.8–2 mm longis 1 mm latis ovati-ellipticis acutis scariosis secundum nerva subluteis valde carinatis et in apice subapiculatis, 5 sepalis 4 mm longis 0.8 mm latis ellipticis concavis glabris acutis subflavis, 5 staminibus cum pseudostamodiis alternis ligulatis profunde 3–4-fissis omnibus in cupula 0.9 mm longa basali connatis, partis liberis filamentarum 1.5 mm longis subulatis ligulatis, antheris 1 mm longis 0.5 mm latis, partis liberis pseudostamindii 2 mm longis 0.4 mm latis ligulatis in apice et margine profunde 3–4-lacinatis, pistilo glabro, ovariis 0.8 mm longis subglobosis, stylo 1 mm longo, stigmate truncato, fructibus 1.5 mm longis 0.7 mm diametro oblongis glabris; semine 0.7 mm longo 0.5 mm diametro late ellipsoideo tetragono fere nigro apice late truncato.

DIAGNOSIS OF HOLOTYPE: Branchlets quadrangular, sparingly strigulose, glabrescent; internodes 3.5–5 cm long; petioles 3–6 mm long, margined, glabrous above, the margin ciliolate, subappressed pilosulous below; blades 15–25 mm long, 14–20 mm wide, thin coriaceous, obovate to broadly obovate, the apex rounded, the base cuneate decurrent, the margin entire, both surfaces pilosulous, densely so below, the hairs about 0.3 mm long, suberect to subappressed, the venation obscure but the midrib salient on the lower surface; inflorescence spicate, sessile, terminal and at the tips of the lateral axillary branchlets about 1–1.5 cm long; spikes 4–11 mm long, 4–8 mm in diameter, capitate to shortly cylindrical; axis white pilose with hairs about 0.7 mm long; rachis bracts 1.5 mm long, 1 mm wide, suborbicular, concave, pale and scariosus, the midrib greenish, thickened and elevated, salient as a short mucro; the 2 lateral floral bracts 1.8–2 mm long, ovate, navicular, scariosus, strongly 1-ribbed;

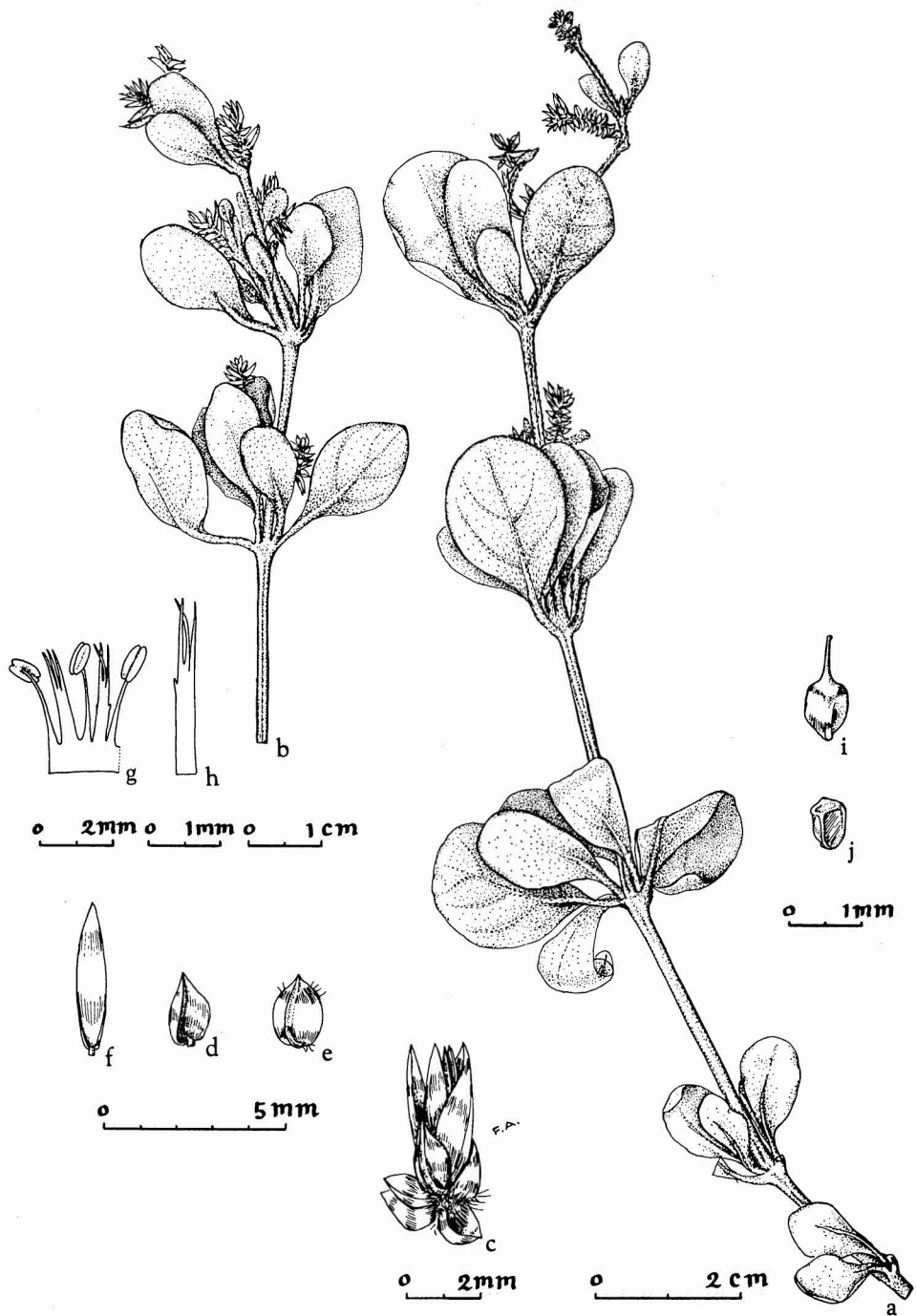


FIGURE 4. *Achyranthes Nelsonii* St. John, from holotype. *a*, *b*, habit, $\times 1$; *c*, bracts and flower, $\times 5$; *d*, rhachis bract, $\times 5$; *e*, lateral floral bract, $\times 5$; *f*, outer sepal, $\times 5$; *g*, androecium, $\times 5$; *h*, free part of pseudostaminodium, $\times 10$; *i*, fruit, $\times 10$; *j*, seed, $\times 10$.

the 5 sepals equal, 4 mm long, 0.8 mm wide, green, elliptic, narrowed to each end, navicular, scarious; androecium a membranous tube 0.9 mm long, from which the 5 filaments arise, each 1.5–2 mm long, filamentous, glabrous; anthers 1 mm long, 0.5 mm wide, oblong-elliptic, alternating with the 5 ligulate pseudostaminodia 2.5 mm long, the apex cleft 1/3 way into 3–4 subulate lobes; style 1 mm long; stigma truncate; ovary 0.8 mm long, subglobose, glabrous; fruit 1.8 mm long; seed 0.7 mm long, 0.5 mm in diameter, broadly ellipsoid, tetragonal, blackish, the apex broadly truncate.

HOLOTYPE: Sandwich Islands [Kona, Hawaii Island], *Dav. Nelson* (BM).

DISCUSSION: This species does not fit into any of the numerous small genera segregated from *Achyranthus*, nor does it conform to the characters of any of the described sections of this genus. It is not really a close relative of, but it is here contrasted with, the somewhat similar species *A. maritima* (Mart.) Standl., a littoral species of the beaches from Florida to Brazil, and on the west coast of Africa, a species with the heads with few flowers; floral bracts mucronate; sepals 3–5-nerved; seeds 1 mm long; leaves glabrous; blades elliptic oblong to oval, 2–6 cm long, 0.8–3 cm wide. *A. Nelsonii* has the heads several flowered; floral bracts not mucronate, sepals 1-nerved; seeds 0.7 mm long; leaves pilosulous; blades obovate, 1.5–2.5 cm long, and 1.4–2 cm wide; seeds 0.7 mm long.

The new epithet is chosen to honor the collector, David Nelson, botanist of Captain Cook's third voyage.

EUPHORBIACEAE

Euphorbia celastroides Boiss., var. *Nelsonii*, var. nov.

Figure 5

DIAGNOSIS HOLOTYPE: Ramis glabris, petiolis 4–6.5 mm longis glabris, capitulis 1–2 (vel 3–5), pedunculis 3–8 mm longis gracilibus, involucri 2 mm longis glabris.

DIAGNOSIS OF HOLOTYPE: Glabrous shrub; branches slender; leafy branchlets bearing 5–8

pairs of spreading leaves, smooth, slightly zigzag between the nodes, the nodes 2 mm in diameter; internodes 4–15 mm long; stipules 1–2.5 mm long, ovate, the upper part and margin pale, membranous; petioles 4–6.5 mm long, fleshy, on drying striate and shrunken; principal blades 5–6.9 cm long, 8–12.5 mm wide, narrowly oblong spatulate, the apex obtuse, the base slightly oblique, auriculate, the margin entire, below the veins raised and conspicuous; cymes axillary, usually 1–2-headed, rarely 3–5-headed, the bracts opposite and like the stipules; pedicel 3–7 mm long; the inflorescence examined and measured after boiling (the shrinkage had been 10 to 20 percent); involucre 2–2.5 mm long, turbinate, glabrous, with 4 large rounded-shield-shaped glands 0.6–0.8 mm wide, and separated by a gap where a fifth one would have been; stamens many, exerted and forming a rosette around the shortly protruded ovary; stamens elongate, in bundles of about 11, united only at base, with 2–3 dwarfed stamens and many repeatedly dichotomous hirsute ciliate staminodia; staminate flowers with pedicel 2.6 mm long, sparsely pilosulous near the apex; filament 0.5 mm long, glabrous; anthers with twinned suborbicular anther sacs 0.2 mm long; pistillate flowers glabrous, with a stipe 2 mm long; ovary 1.8 mm long, 3-lobed, the three stigmas ligulate, 2-lobed; fruit unknown.

HOLOTYPE: Sandwich Island [Kona, Hawaii Island], Messrs. *Menzies & Dav. Nelson* (BM).

DISCUSSION: These specimens seem to represent an undescribed variety, to be added to the already considerable number. In Sherff's key (1938: 9) it runs to var. *haupuana*, but it scarcely resembles it. There is a greater similarity to the var. *maniensis* Sherff, but this has the branches puberulous; petioles 1–2 mm long, puberulous; capitula mostly solitary, sessile or subsessile; involucre outwardly pubescent; and it grows on Lanai and Maui. The var. *Nelsonii* differs by having the branches glabrous; petioles 4–6.5 mm long, glabrous; capitula 1–2 (or 3–5) in an inflorescence; peduncle 3–8 mm long, slender; involucre 2 mm long, glabrous. In leaf shape and in general aspect the new plant is very like var. *odonatoides* Sherff (1951: 55, fig. 2), but this has the branchlets thick, at first very minutely

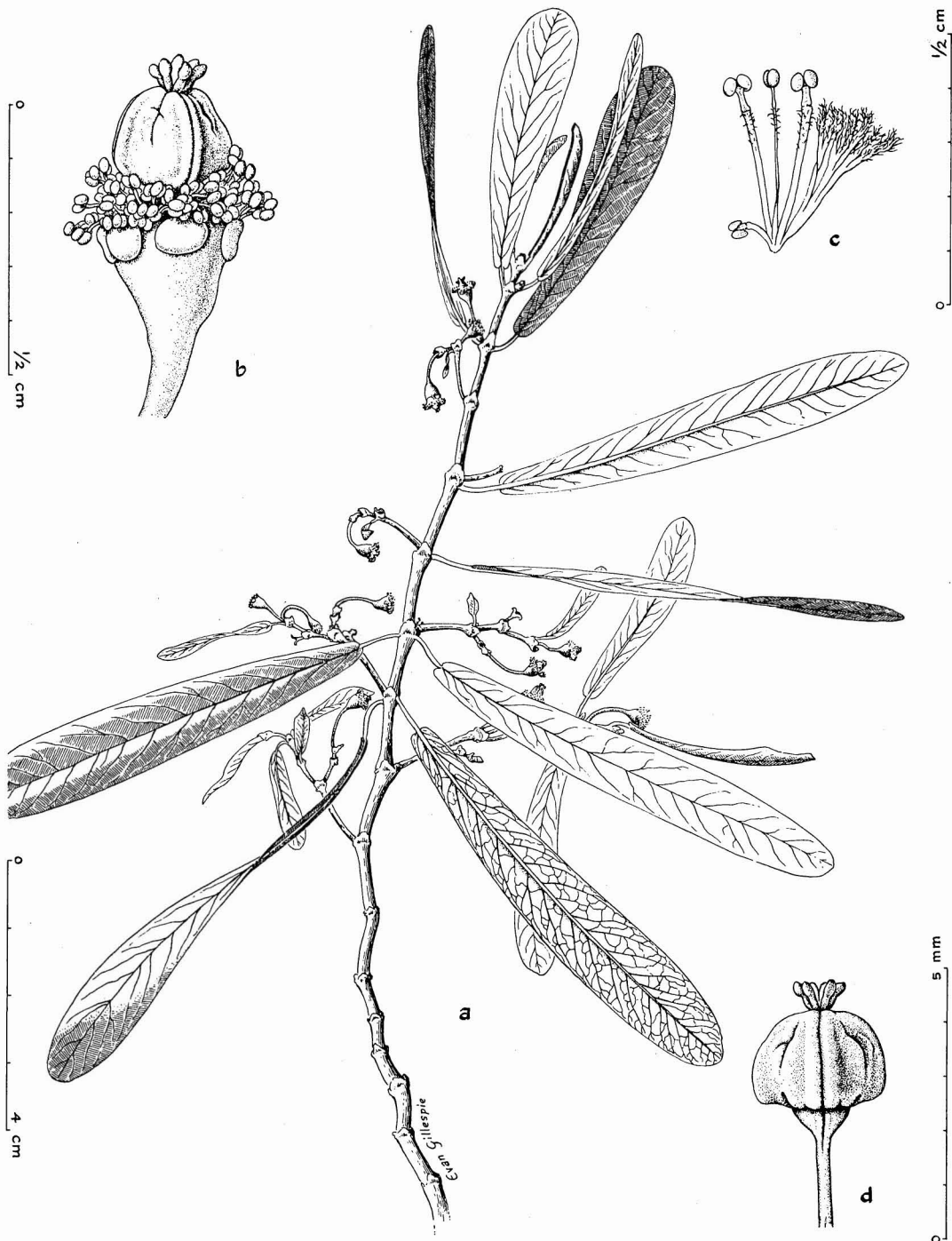


FIGURE 5. *Euphorbia celastroides* Boiss., var. *Nelsonii* St. John, from holotype. *a*, habit, $\times 1$; *b*, flower, $\times 8$; *c*, stamens and bractlet, $\times 8$; *d*, capsule, $\times 8$.

hispidulous, 3–5 mm in diameter at the nodes; young leaves densely pubescent; principal leaves 3–6 cm long, 4–16 mm wide, the apex obtuse or truncate or even somewhat emarginate, the base very oblique; petioles 1–2 mm long, densely hispidulous; involucre densely yellowish tomentose without, sessile or on a thickish pedicel less than 1 mm long and densely hispidulous; capsule hispidulous with often stellate hairs; and it occurs on Lanai. The var. *Nelsonii* is separable by having the branchlets slender, glabrous, 2 mm in diameter at the nodes; young leaves glabrous; principal blades 5–6.9 cm long, 8–12.5 mm wide, the apex obtuse, the base slightly oblique; petioles 4–6.5 mm long, glabrous; involucre glabrous; pedicels 3–7 mm long, glabrous; and the ovary glabrous.

The type sheet bears four leafy branches from 7.5–17 cm in length. They seem to be identical, and might even have come from the same bush. However, the data indicate that the sheet bears two collections, one by David Nelson who was at Kealakekua, Hawaii, with Captain Cook, and one by Archibald Menzies who was on Captain Vancouver's voyage. Dr. Menzies was an officer, and one of his duties was to examine the botanical productions of the lands visited. He had much liberty, made frequent shore excursions, and probably landed and made collections at each port visited by the ship on Hawaii, Maui, Oahu, Kauai, and Niihau. Unfortunately his specimens bear no other data than Sandwich Islands.

The other collector, David Nelson, was a botanist, a supernumerary in the crew of the *Discovery*, and was on Captain Cook's third voyage. His only recorded botanizing trip in the islands was on the excursion to climb from Kealakekua to the mountain Mauna Loa. With him was John Ledyard, the Yankee who proposed the trip, and who was a marine corporal. They reported climbing for 3 days, reaching a spot in the rain forest 24 miles from the shore and 11 miles from the peak. The 24 miles climbed were obviously estimated trail miles, not airline, and the total of the 24 and 11 reveals that the distance travelled was overestimated, as they did not get beyond the rain forest. From these circumstances, it is deduced that certainly the Nelson specimens and probably the Menzies

specimens came from this western part of the island of Hawaii.

MALVACEAE

Sida Ledyardii (sect. *Sida*) sp. nov.

Figure 6

DIAGNOSIS HOLOTYPE: Frutex ultra 45 cm altus erectus est, novellis dense stellati-puberulis velutinis et remote hirsutis, ramulis foliosis 0.7–3 mm diametro, internodis 0.7–3 cm longis; nodis paulo incrassatis, cicatricibus foliorum 0.7–1 mm latis hemisphaericis pallidis elevatis, foliis principalibus (eis caulis centralis) cum petiolis 12–17 mm longis cum pilis simulantibus, stipulis 5–7 mm longis linearibus deciduis, laminis 2.8–3.5 cm longis 1.7–2.4 cm latis ellipticis minime ad apicem contractis et subacutis basi rotundata crasse chartaceo marginibus rotundati-denticulatis nervis secundariis 5 in dimidio quoque subcurvatis adscendentibus nervis supra impressis sed infra elevatis supra laminis ut videtur viridibus sed dense stellati-puberulis infra dense stellati-pilosulis velutinis, ramulis lateralibus cum foliis cum pilis simulantibus, stipulis 5 mm longis, petiolis 5–8 mm longis, laminis 1–2 cm longis 8–13 mm latis simulantibus, floribus 1–5 in axilibus superis, pedicellis 20–37 mm longis dense stellati-puberulis et hirsutis, alabastris 6–8 mm longis late fusiformibus acriter 5-angulosis dense stellate albi-puberulis velutinis, tubo calycis 3.5 mm longis hemisphaericis 10-costatis cum pilis simulantibus, 5 lobis calycis 3–3.5 mm longis deltoideis intra pilosulis sed tubo glabro, petalis 1.4 cm longis 7 mm latis limbo cum lobis binis divergentibus loba breviori 1 cm longa ambis obtusis, columna staminalis 4 mm longa, apicibus liberis filamentarum 1–1.1 mm longis, schizocarpo 4.5 mm diametro subglobo, coccis siccis 3.2–3.5 mm longis dorso 2 mm lato 1.2 mm crasso badio dorso cum vallecule centrali et rugis transversis subtilibus valvis 0.5 mm longis ovatis obliquis et adpresse puberulis.

DIAGNOSIS OF HOLOTYPE: Shrub, more than 45 cm tall, erect; young shoots densely stellate puberulous velvety and remotely hirsute, leafy shoots 0.7–3 mm in diameter; internodes 0.7–3 cm long; nodes scarcely enlarged; leaf

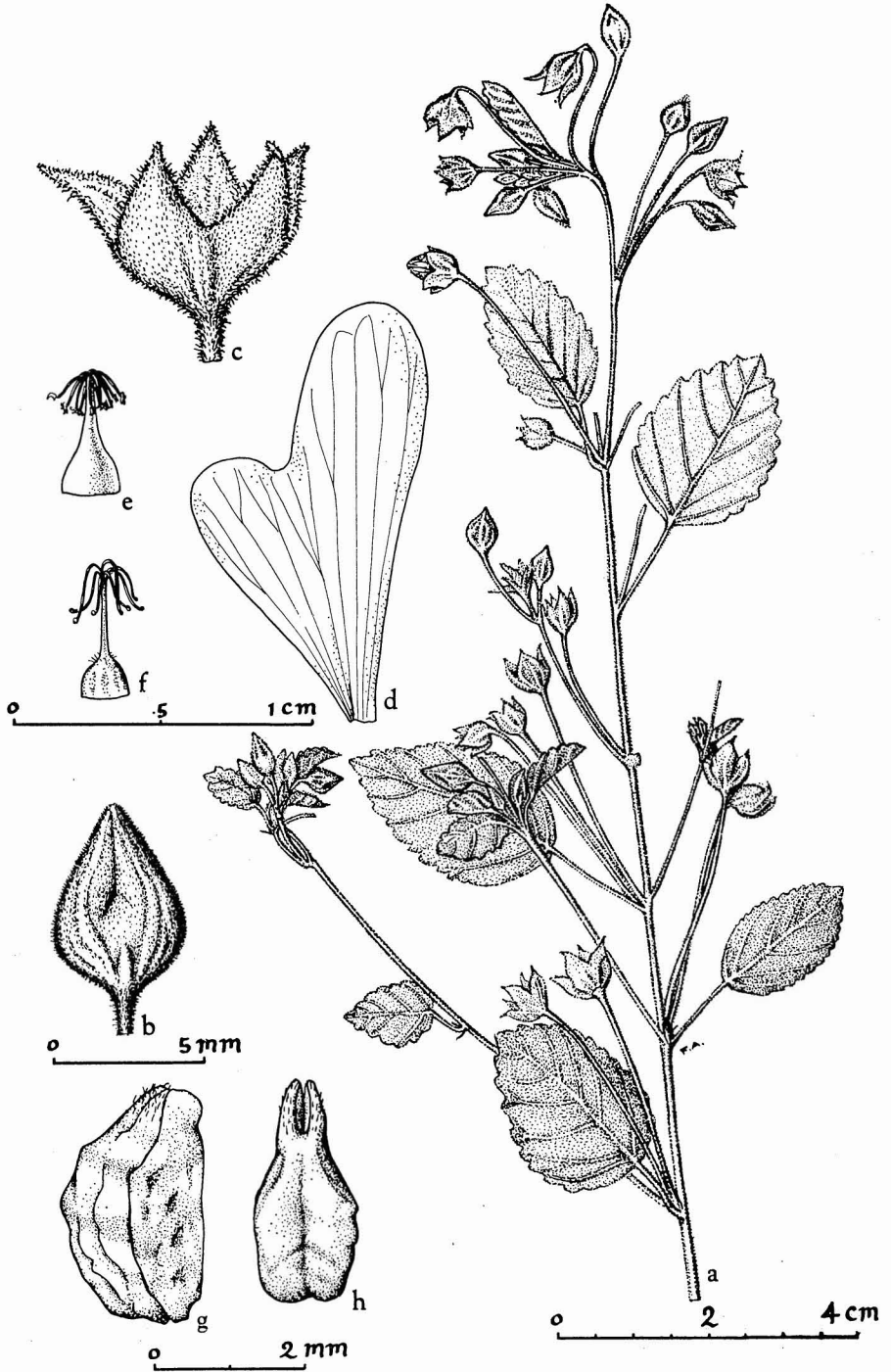


FIGURE 6. *Sida Ledyardii* St. John, from holotype. *a*, habit, $\times 1$; *b*, bud, $\times 4$; *c*, calyx, $\times 4$; *d*, petal, $\times 4$; *e*, androecium, $\times 4$; *f*, ovary, styles, stigmas, $\times 4$; *g*, coccus, side view, $\times 10$; *h*, coccus, distal view, $\times 10$.

scars 0.7–1 mm wide, hemispheric, pale, elevated; principal leaves (of the main stem) with petioles 12–17 mm long, with similar pubescence; stipules 5–7 mm long, linear, deciduous; the blades 2.8–3.5 cm long, 1.7–2.4 cm wide, elliptic, slightly narrowed to a subacute apex, the base rounded, thick chartaceous, the margin rounded denticulate, secondary veins 5 in each half, slightly curved ascending, the veins above impressed, but below the midrib and secondaries elevated, above appearing green but closely stellate puberulous, below densely stellate pilosulous velvety; leaves of the lateral branchlets with similar pubescence; stipules 5 mm long; petioles 5–8 mm long; blades 1–2 cm long, 8–13 mm wide, similar; flowers borne in the upper axils, 1–5 to an axil; pedicels 20–37 mm long, densely stellate puberulous and spreading hirsute; buds 6–8 mm long, broad fusiform, sharply 5-angled, densely white stellate puberulous velvety; calyx tube 3.5 mm long, hemispheric, 10-ribbed, with similar pubescence; 5 calyx lobes 3–3.5 mm long, deltoid, within pilosulous but the tube glabrous; petals 1.4 cm long, 7 mm wide, the limb with 2 diverging lobes, the shorter lobe 1 cm long, both obtuse; staminal column 4 mm long; free filament tips 1–1.1 mm long; schizocarp 4.5 mm in diameter, subglobose; dried cocci 3.2–3.5 mm long, the back 2 mm wide, 1.2 mm thick, brown, the back with a central valley and weak transverse ridges, the valves 0.5 mm long, ovate, oblique, appressed puberulous.

HOLOTYPE: Sandwich Islands [Kona District, Hawaii Island], *Dav. Nelson* (BM).

DISCUSSION: *S. Ledyardii* is a member of the section *Sida*, as is the similar species *S. Diellii* Gray, of Hawaii Island, a species with the blades ovate, finely dentate crenate; pedicels 7–8 mm long; calyx lobes ovate, subacute; dried cocci 3 mm long, 1.2 mm wide, the valves 0.8 mm long, deltoid. *S. Lydgatei* has the blades elliptic, subacute, rounded denticulate; pedicels 20–37 mm long; calyx lobes deltoid; dried cocci 3.2–3.5 mm long, 2 mm wide, the valves 0.5 mm long, obliquely ovate.

The species is named for John Ledyard, a companion of David Nelson on his botanical trip on the island of Hawaii in 1779.

Sida Nelsonii (sect. *Sida*) sp. nov.

Figures 7, 8

DIAGNOSIS HOLOTYPI: Frutex est, ramulis obscuris et purpureis et remote stellati-hirsutulis pilis 0.2 mm longis, stipulis 7–8 mm longis 0.2 mm latis lineari-subulatis subglabris deciduis, petiolis 9–14 mm longis stellati-hirsutulis, laminis 4–5 cm longis 3–4 cm latis crasse chartaceis ovatis vel late ovatis apice acuto basi cordata marginibus dupli-ovati-dentatis supra sparsim stellati-puberulis in midnervo et nervis secundariis infra remote stellati-hirsutulis nervis supra impressis infra elevatis fere 4 in dimidio quoque, floribus multis 2–3 in axilibus superis, pedicellis 25–35 mm longis sparsim stellati-hirsutulis saepe cum nodo 4.5–6 mm infra calycem, calycibus extra in costis et marginibus sparsim stellatis hirsutulis sed infra in lobis dense stellati-canescens pilis 0.1–0.2 mm longis flexuosis, tubo 3 mm longo 7 mm diametro in basi truncato, 5 lobis 5.5–6.2 mm longis 5 mm latis ovatis acuminatis midnervis elevatis, 5 petalis 9 mm longis 13 mm latis late cuneatis apice rotundato membranaceis ungui glabro, tubo filamentarum 4 mm longo 1 mm diametro in apice sparse stellati-puberulo apicibus filamentarum 1 mm longis glabris, antheris 0.5 mm longis 0.2 mm latis, stigmatibus capitulatis, 13 stylis apice libero 4 mm longo pendentem parte basali 1.2 mm longa glabra, ovario 1.2 mm alto 2 mm diametro late oblate conico 12-loculato cum pilis paucis stellatis, calyce in fructu 9 mm diametro, coccis siccatis 5 mm longis bicornutis corpore 3.1–3.5 mm longis 2.2–2.5 mm latis 1.5 mm crassis valvis 0.7 mm longis oblate deltoideis setis 1.3–1.8 mm longis erectis glabris, seminibus 1.7 mm longis 1.5 mm latis suborbicularibus compressis nigris nitidis.

DIAGNOSIS OF HOLOTYPE: Shrub; branchlets dark and purplish, with scattered hirsutulous stellate hairs 0.2 mm long; stipules 7–8 mm long, 0.2 mm wide, linear-subulate, subglabrous, deciduous; petioles 9–14 mm long, stellate hirsutulous; blades 4–5 cm long, 3–4 cm wide, thick chartaceous, ovate to broadly ovate, the apex acute, the base cordate, the margins doubly ovate-dentate, the upper surface sparsely stellate puberulous on midrib and primary veins, below sparingly stellate hirsutulous, above the

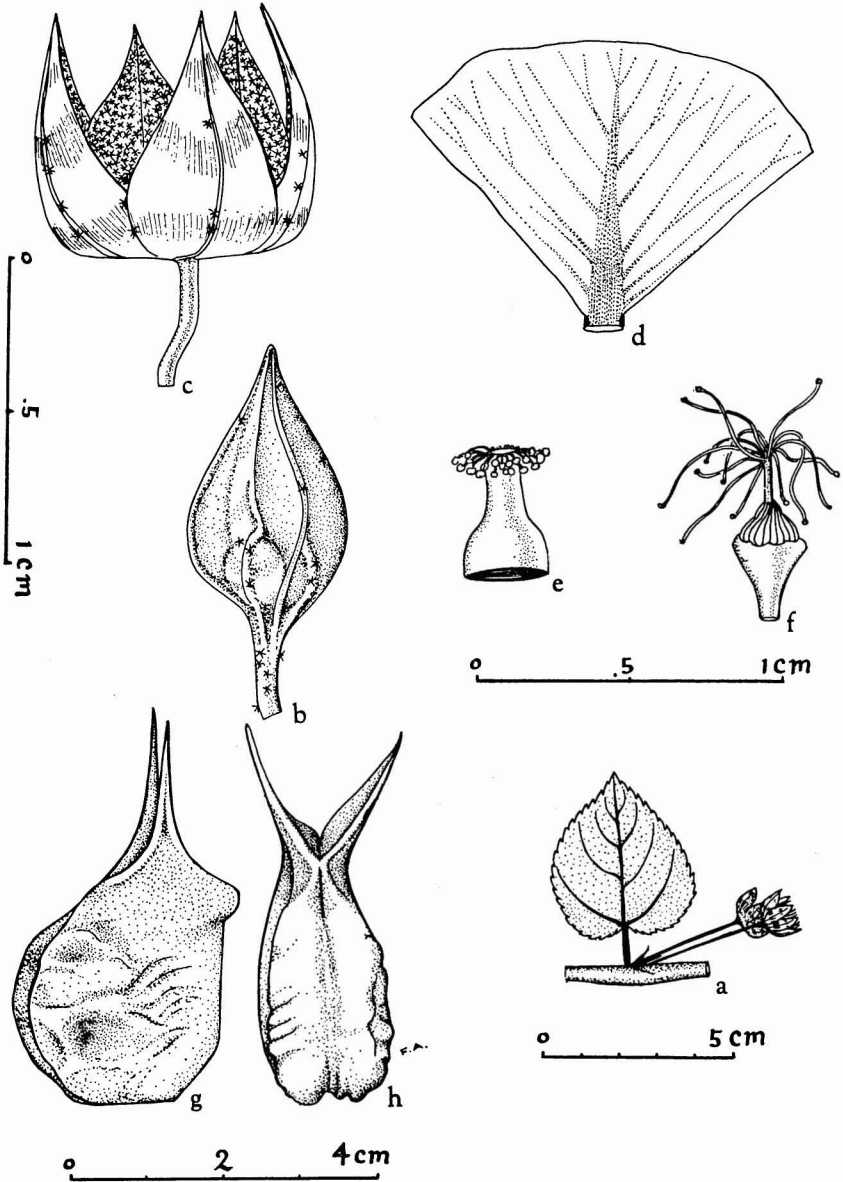


FIGURE 7. *Sida Nelsonii* St. John, from holotype. *a*, node, with leaf and fruits, $\times \frac{1}{2}$; *b*, bud, $\times 4$; *c*, calyx in fruit, $\times 4$; *d*, base of petal, $\times 4$; *e*, androecium, $\times 4$; *f*, ovary, styles, stigmas, $\times 4$; *g*, coccus, lateral view, $\times 10$; *h*, coccus, distal view, $\times 10$.

principal veins impressed, but salient below, secondary veins about 4 in each half; flowers abundant, 2–3 in the upper leaf axils; pedicels 25–35 mm long, often with a joint 4.5–6 mm below the base of the calyx, sparingly stellate hirsutulous; calyx very sparsely stellate on ribs and margin, subglabrate, but within densely

stellate canescent on the lobes, the hair branches 0.1–0.2 mm long, flexuous, the tube 3 mm long, 7 mm in diameter, truncate at base, the 5 lobes 5.5–6.2 mm long, 5 mm broad, ovate, acuminate, the midrib elevated; 5 petals 9 mm long and 13 mm wide, broadly cuneate, the apex rounded, glabrous, membranous, the claw short;



FIGURE 8. *Sida Nelsonii* St. John. Photo of type sheet. The two fruiting branches at the left are the holotype.

filament tube 4 mm long, 1 mm in diameter, sparsely stellate near the apex, the free filament tips 1 mm long, glabrous; anthers 0.5 mm long, 0.2 mm wide; stigmas capitellate; styles 13, the free portion 4 mm long, mostly more or less pendent, the basal portion 1.2 mm long, glabrous; ovary 1.2 mm high, broadly depressed conic, 2 mm in diameter, with a few scattered stellate hairs, 12-celled; fruiting calyx about 9 mm in diameter; cocci 5 mm long, bicornate apically, the main body 3.1–3.5 mm long, 2.2–2.5 mm wide, 1.5 mm thick, valves 0.7 mm long, low, broad deltoid, awns 1.3–1.8 mm long, erect, glabrate; seeds 1.7 mm long, 1.5 mm wide, suborbicular, compressed, black, shining.

HOLOTYPE: Sandwich Island [= Hawaiian Islands], Messrs. *Menzies & D. Nelson* (BM).

DISCUSSION: *Sida Nelsonii* can be compared to *S. sertum* Nutt. ex Gray, a species with the calyx closely minutely stellate tomentose, the lobes

acuminate; dried cocci 4.1–4.2 mm long, the valves 1–1.1 mm long, the awns 0.9 mm long; young shoots densely stellate tomentose; blades 1.5–3.4 cm long, elliptic ovate, obtuse. *S. Nelsonii* has the calyx very sparsely stellate on ribs and margins, subglabrate; dried cocci 5 mm long, the valves 0.7 mm long, the awns 2–2.5 mm long; young shoots with scattered stellate hairs; blades 4–5 cm long, ovate to broadly ovate, acute.

The holotypic sheet contains two branches with many fruits, but almost leafless; and one leafy fruiting branch. The data, Sandwich Island. Menzies and Nelson, indicate that there were two collections, but do not mark them. Nelson's collection must have been from Kona, Hawaii. Menzies collected on all the major Hawaiian Islands, including Hawaii, so his plant may also have come from Kona, Hawaii, but it cannot be proven. The two left-hand specimens on the sheet are here made the holotype. The writer thinks that they were collected



FIGURE 9. *Labordia Nelsonii* St. John, from holotype. *a*, habit, $\times \frac{1}{2}$; *b*, nodes, petioles, and stipule, $\times 2$; *c*, fruit, $\times 2$.

by Nelson. He was botanist on the *Discovery* on Captain Cook's third voyage.

LOGANIACEAE

Labordia Nelsonii sp. nov. (sect. *Rabdolia*)

Figure 9

DIAGNOSIS HOLOTYPI: Planta lignosa 1 m alta est, novellis quadrangularibus albi-hirsutis, ramulis vetustioribus glabratis teretibus laevibus subluteis, nodis incrassatis, internodis 1.1–5 cm longis, stipulis intrapetiolaribus connatis et ocream 3–4 mm altam glabrem infundibuli-

formem bifidem formantibus, petiolis 10–15 mm longis compressis vadose canaliculatis supra glabris in marginibus et infra sparse hirsutulis, laminis 7–9.5 cm longis 2.5–3.9 cm latis coriaceis oblanceolatis apice rotundato subacuto basi anguste cuneato longe decurrenti nervis supra obscuris sed infra evidentis, nervis secundariis 4–5 in dimidio quoque curvatis ascendentibus supra obscure viridibus glabris infra pallide viridibus et sparse hirsutis, cymis 4–8-floriferis densis terminalibus 2.2–2.5 cm longis, bracteis 4–5 mm longis 0.4 mm latis linearibus sparse hirsutuli-ciliatis, pedicellis 4–6.5 mm longis hirsutis, calycibus cum 5

sepalis 15–17 mm longis 3–3.7 mm latis angustissime ellipticis crebre 5-nervosis in basi hirsutis et sursum midnervum remote in midnervo hirsuto intra glabris, in bordinibus in dimidio infero minute ciliolatis, capsulis 22 mm longis 8 mm latis lanceolatis compressis ecarinatis erostratis dense subadpresse hirsutis, floribus incognitis.

DIAGNOSIS OF HOLOTYPE: Woody plant 1 m tall; young branchlets quadrangular, white hirsute, the older branchlets glabrate, terete, smooth, yellowish; nodes enlarged; internodes 1.1–5 cm long; stipules intrapetiolar, united and forming a sheath 3–4 mm high, glabrous, funnelform, but 2-notched, one in each interval; petioles 10–15 mm long, flattened, shallowly channeled, and glabrous above, sparsely hirsutulous on the margins and the lower side; blades 7–9.5 cm long, 2.5–3.9 cm wide, coriaceous, oblanceolate, the apex rounded, then abruptly subacute, the base narrowly cuneate, long decurrent, venation rather obscure above, but distinct below, the lateral veins 4–5 in each half, curved ascending, above dark green, glabrous, below pale green and sparsely hirsute; cymes 4–8-flowered, terminal, dense, 2.2–2.5 cm long; bracts 4–5 mm long, 0.4 mm wide, linear, sparsely hirsutulous ciliate; pedicels 4–6.5 mm long, hirsute; calyx of 5 subequal sepals 15–17 mm long, 3–3.7 mm wide, very narrowly elliptic, strongly 5-nerved, hirsute at base, and remotely so up the midrib, glabrous within, minutely ciliolate on the margins of the lower half; immature capsules 22 mm long, 8 mm wide, lanceolate, compressed, ecarinate, beakless, densely subappressed hirsute; flowers unknown.

HOLOTYPE: Sandwich Islands, Owhaihee [Kona, Hawaii Island], in sylvis densis jugum montium, Capt. Cook's 3rd Voyage, *David Nelson* (BM).

DISCUSSION: *L. Nelsonii* is mostly closely related to *L. hedyosmifolia* Baill., var. *robusta* Sherff, of Naalehu, Hawaii, a variety with the blades 3.8–7 cm long, 1.8–3.2 cm wide; petioles 2–7 mm long; stipules 4–5 mm high, the conspicuous yellowish membranous margin 1.5–2.5 mm wide; pedicels 13–17 mm long; sepals

7–12 mm long, 1.2–2 mm wide, linear oblanceolate or linear; mature capsules 18 mm long. *L. Nelsonii* has the blades 7–9.5 cm long, 2.5–3.9 mm wide; petioles 10–15 mm long; stipules 3–4 mm high, the inconspicuous membranous margin 0.5–1 mm wide; pedicels 4–6.5 mm long; sepals 15–17 mm long, 3–3.7 mm wide, very narrowly elliptic; immature capsules 22 mm long.

The new species is like *L. pumila* (Hbd.) Skottsb. in lacking a style, but is very unlike it in most other details.

The new epithet is chosen to honor the collector, David Nelson.

LABIATAE

Phyllostegia floribunda Benth., Labiatarum Gen. Sp. 653, 1835, Feb.

P. floribunda Benth., var. *typica* Sherff, Brittonia 6: 336, 1948; B. P. Bishop Mus., Bull. 136: 55, 1935.

Figure 10

ORIGINAL DIAGNOSIS: "pubescens vel hirsuta, foliis ellipticis amplis basi rotundatis angustatisve, cymis axillaribus laxe ramosissimis multifloris hirsutissimis, calycibus hirsutis, dentibus linearibus tubo subaequilongis, corollis calyces breviter superantibus.

"Rami auri lignosi? pilis adpressis pubescentes. Folia longe petiolata, 2–5-pollicaria, tenuia, pilis brevibus hispidula. Corymbi vel cymae fere ut in *Bystropogone* ampla ramosissima. Bracteae parvae, ovatae vel oblongae. Pedicelli calyce sublongiores. Calyx 2–3 lin. longus, tenuis, fructifer dilatatus. Corolla parva, glabra, forma fere *P. racemosae* at tenuior."

EXPANDED DIAGNOSIS OF HOLOTYPE: Shrub; leafy branchlets 2–4 mm in diameter; branchlets quadrangular, unisulcate on each face, the angles rounded, hirsute, the hairs arcuate to subappressed; internodes 2.3–5.8 cm long; petioles 2–4.5 cm long appressed hirsutulous; blades 7.5–13 cm long, 5–6 cm wide, elliptic, the apex acute, the base shortly cuneate, above and below hirsutulous on the veins, the intervals below rather densely dotted with minute, golden brown oil glands, the margin crenate,

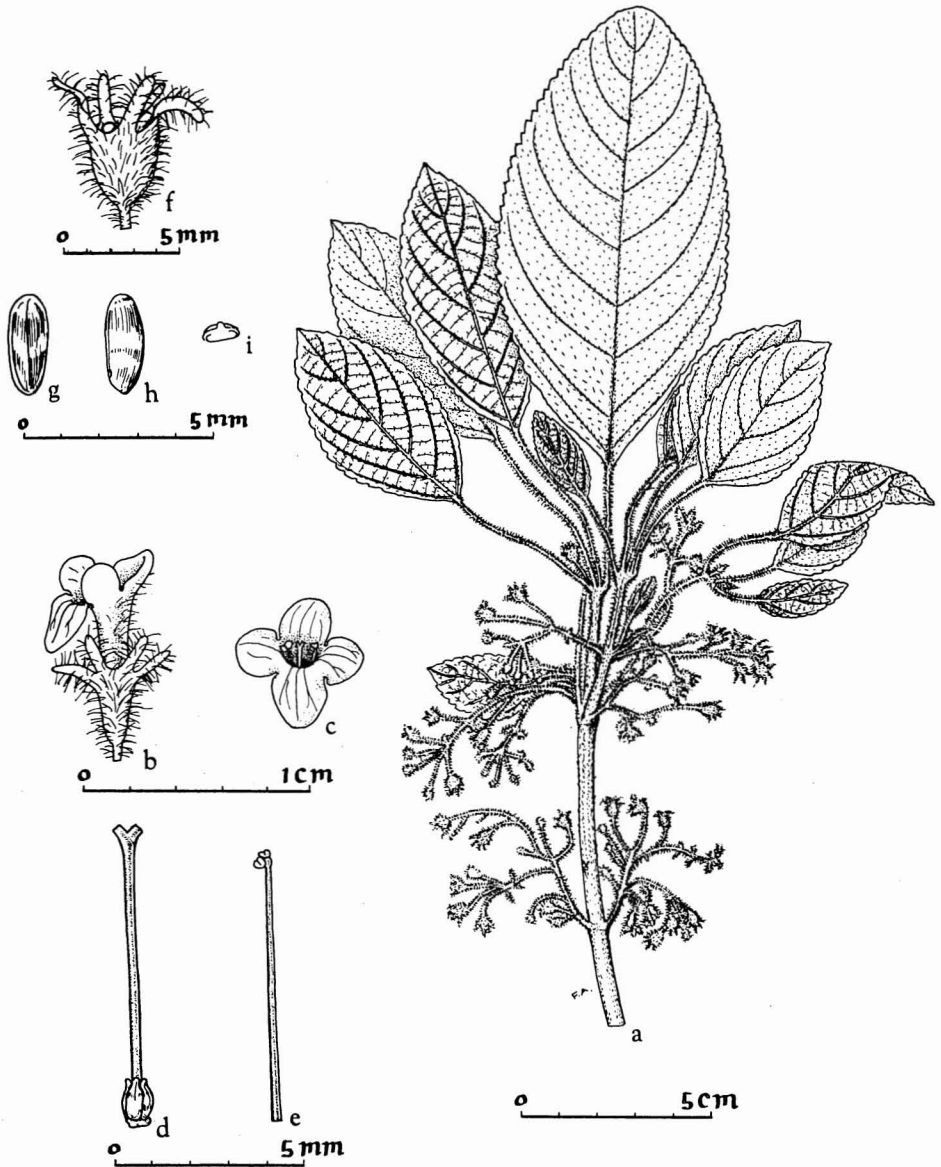


FIGURE 10. *Phyllostegia floribunda* Benth., from holotype. *a*, habit, $\times \frac{1}{2}$; *b*, flower, lateral view, $\times 3$; *c*, corolla throat and lobes, $\times 3$; *d*, pistil, $\times 5$; *e*, stamen, $\times 5$; *f*, fruiting calyx, $\times 3$; *g*, *h*, *i*, seed, $\times 5$.

with about 3 teeth per cm, the venation prominent below, about 8 secondary veins in each half, curved ascending; inflorescence axillary, paniculate, 3–6.5 cm long, and all the axes white hispid; peduncles 8–15 mm long; bracteoles 3.5–6.5 mm long, 0.7–2.5 mm wide, foliaceous, obovate to oblanceolate, villous-hispid; pedicels 4–8 mm long, hispid; calyx in flower

5–6.5 mm long, 1.5–2 mm in diameter, campanulate, hispid and glandular atomiferous without, glabrous within, the lobes 1 mm long, subulate, the tube 3.5–4 mm long; corolla glabrous, the tube 7 mm long, 1 mm in diameter, mostly straight, then near the throat slightly decurved, the limb 4-lobed; the lower lip 3 mm long, 2 mm wide, broadly elliptic, the

2 lateral lobes 2 mm long and wide, sub-orbicular; the upper lobe 2.5 mm long and wide, broadly elliptic; the 2 upper longer stamens with the filaments adnate to the corolla tube up to the throat, the free tips 3 mm long, subulate, sparsely pilosulous; anthers 0.5 mm long, dimidiate; the 2 lower stamens with filaments 0.5 mm shorter, similar, but on the example seen the anthers have fallen; ovary 1 mm long, 4-lobed, dark; style 7 mm long, stout subulate; stigmatic lobes 2 and 0.2 mm long, diverging; calyx in fruit 6–7 mm long, 4–5 mm in diameter, broadly campanulate, the lobes 2.5–3 mm long, 0.6–0.7 mm wide; nutlets 2.1–2.3 mm long, 0.8–1 mm wide and thick, narrowly ellipsoid, smooth, blackish, with a sharp angle between the two inner faces; hilum 0.6 mm long, at the base of the inner ridge, pale, like a flattened ellipse.

HOLOTYPE: In ins. Sandwich [Kona, Hawaii Island], *Nelson* (BM).

DISCUSSION: Under this present treatment it is evident that *P. floribunda* is known only by the holotype, from the western slope of Hawaii Island. The specimens from eastern Hawaii, listed by Sherff (1935: 55) as *P. floribunda*, are now removed and classified as *P. villosa* St. John.

Phyllostegia Forbesii (Sherff) comb. nov.

P. floribunda Benth., var. β *Forbesii* Sherff, Am. Journ. Bot. 21: 699, 1934; B. P. Bishop Mus., Bull. 136: 55–56, 1935.

Figure 11

ORIGINAL DIAGNOSIS: "Caulis infra sparsim supra dense brevi-hispidus setulis minutis erecto-adpressis. Folia supra sparsim ac breviter adpresso-hispida, infra secundum venas subadpresso-pubescentia alibi glabrata sed numerosissime ac minutissime resinoso-punctulata. Inflorescentiae pili breviores, saepe glanduloso-capitati; calyce dimidio minore, valde resinoso-glanduloso."

EXPANDED DIAGNOSIS OF ISOTYPES: Upright shrub 6–11.5 dm tall; leafy branchlets 1–6 mm in diameter, quadrangular, with rounded angles and broad shallow intervening valleys, curved

ascending white puberulous; internodes 5–10.5 cm long; nodes enlarged; leaf scars 2–2.5 mm wide, lunate, stramineous; bundle scar single, large, central; petioles 3–8 cm long, slender, channeled above, curved ascending white puberulous; blades of main stems 13–22 cm long, 6.3–11 cm wide, lance-elliptic, the apex acute, the base rounded, texture chartaceous, above and below sparsely appressed puberulous on the surface and densely so on the principal veins, above dark green, below pale green, the margins crenate, with 2–3 teeth per cm, the venation evident on both sides, secondary veins 5–8 in each half, curved ascending; inflorescences axillary, racemose (rarely paniculate), usually 1, rarely 2 per axil, 4–8 cm long, 20–25 mm in diameter, white hirsutulous, the hairs at first capitate glandular; bracts 2–4 mm long, elliptic, foliaceous; peduncles 1–2 cm long; pedicels 6–9 mm long; calyx in flower 4.5 mm long, reddish, cylindric campanulate, 1 mm in diameter at the throat, capitate glandular hirsutulous and densely resinous atomiferous, the tube 3–3.5 mm long; the lobes 1 mm long, narrowly deltoid, ascending; corolla with the throat and upper portion red, the lower part of the tube white; corolla tube 7 mm long, arcuate decurved, 1.5 mm in diameter at the throat; the limb 4-lobed, gland-dotted; the lower lip 3 mm long, oblong suborbicular; the 2 lateral lobes 1.8 mm long, 2.5 mm wide, rounded oblong, the upper lobe 2 mm long, 3 mm wide, oblate suborbicular, the 2 longer stamens with their filaments adnate to the corolla tube for 3 mm, the free tips 2 mm long, filamentous, glabrous; anthers 0.7 mm long, glabrous; calyx in fruit 4.5–5 mm long, subglobose; dry nutlets 3–3.2 mm long, 1.5–1.7 mm wide, 0.6–0.7 mm thick, blackish brown, ellipsoid, with the 2 radial faces flat and a sharp inner angle.

HOLOTYPE: Hawaiian Islands, Hawaii Island, Kona, Kaalapuualae [= Kealapuali], June 30, 1911, *C. N. Forbes* 294.H. (MO). Three isotypes (BISH) examined.

DISCUSSION: *P. Forbesii* is mostly closely related to *P. floribunda* Benth., a species with the inflorescences paniculate, white hispid; pedicels 4–8 mm long; calyx in flower 5–6.5 mm long,

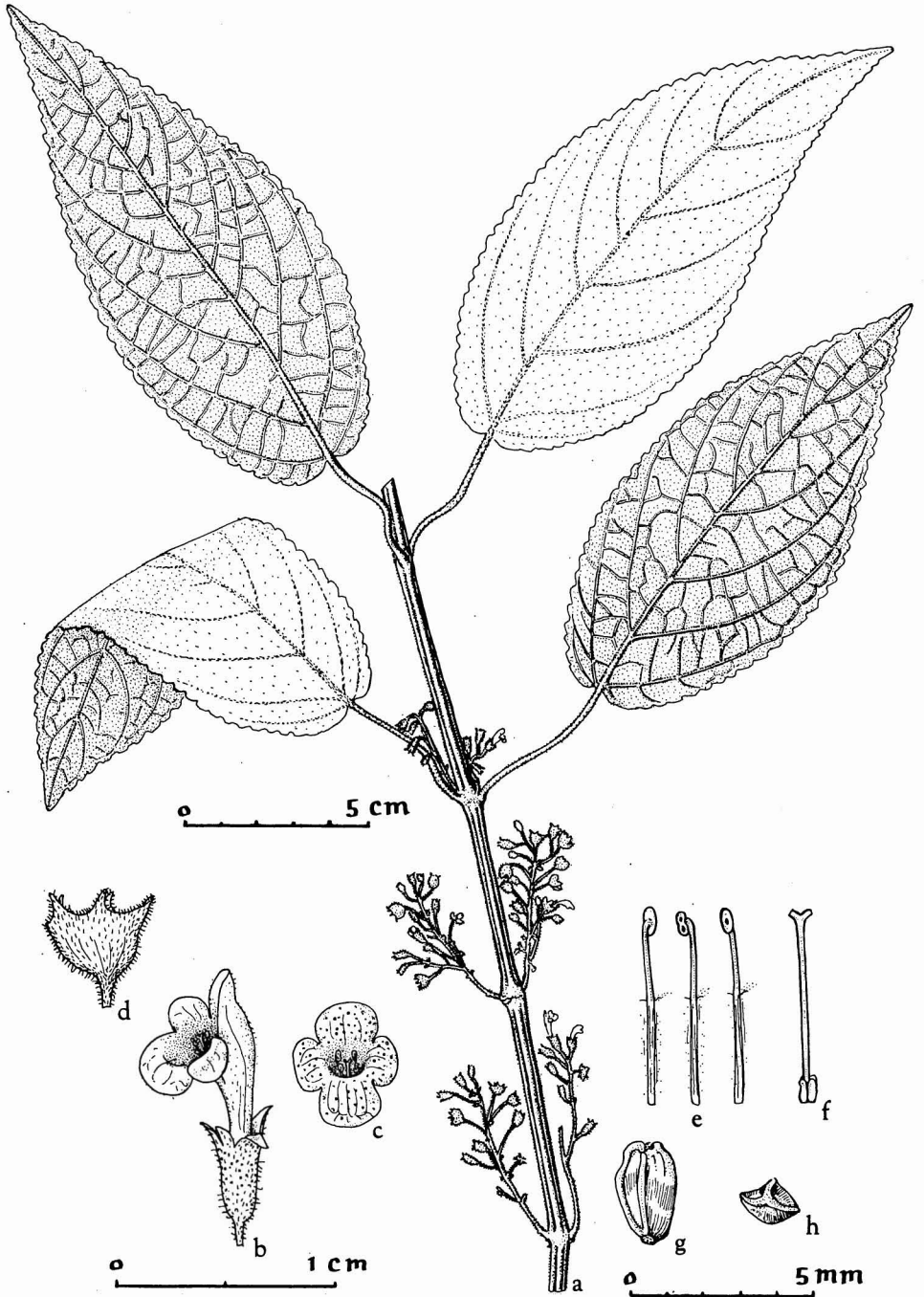
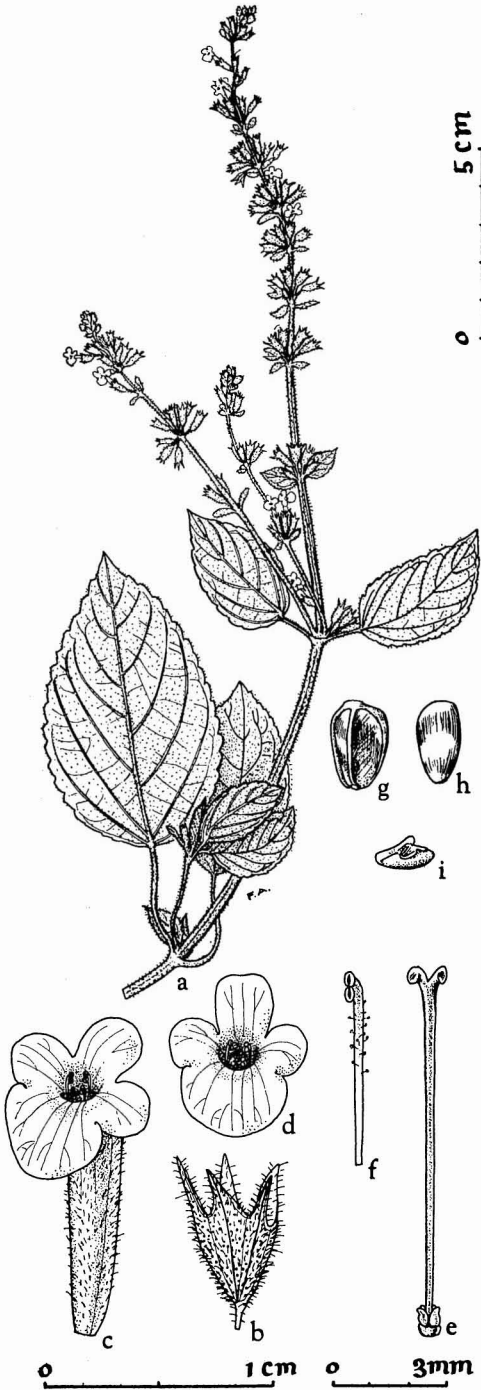


FIGURE 11. *Phyllostegia Forbesii* (Sherff) St. John, from isotypes. *a*, habit, $\times \frac{1}{2}$; *b*, flower, $\times 3$; *c*, corolla throat and lobes, $\times 3$; *d*, fruiting calyx, $\times 3$; *e*, stamens, $\times 5$; *f*, pistil, $\times 5$; *g*, *h*, seed, $\times 5$.



1.5–2 mm in diameter, hispid and resinous atomiferous, the tube 3.5–4 mm long, the lobes subulate; calyx in fruit 6–7 mm long, broadly campanulate, the lobes 2.5–3 mm long; corolla with the lateral lobes 2 mm long and wide, the upper lobe 2.5 mm long and wide; free filament tips 3 mm long, pilosulous; dry nutlets 2.1–2.3 mm long; stem angles hirsute; petioles 2–4.5 cm long, appressed hirsutulous; blades 7.5–13 cm long, above and below hirsutulous on the veins, the surface below dotted with oil glands. *P. Forbesii* has the inflorescences racemose (rarely paniculate), capitate glandular hirsutulous; pedicels 6–9 mm long; calyx in flower 4.5 mm long, 1 mm in diameter, capitate glandular hirsutulous and resinous atomiferous, the tube 3–3.5 mm long, the lobes narrowly deltoid; calyx in fruit 4.5–5 mm long, the lobes 1 mm long; corolla with lateral lobes 1.8 mm long, 2.5 mm wide, the upper lobe 2 mm long, 3 mm wide; free filament tips 2 mm long, glabrous; dry nutlets 3–3.2 mm long; stem curved ascending white puberulous; petioles 3–8 cm long, puberulous; major blades 13–22 cm long, above and below appressed puberulous.

Phyllostegia Ledyardii sp. nov. (sect. *Phyllostegia*, subsect. *Holophyllae*)

Figure 12

DIAGNOSIS HOLOTYPE: Ramulis omnibus quadrangularibus pilosulis pilis 0.5 mm longis, nodis densioriter pilosulis pilis 0.7 mm longis, petiolis 1–5 cm longis albi-pilosus et pilosulis, laminis 3–8.5 cm longis 2–6 cm latis tenuiter chartaceis ovatis cordatis apice acuta paginis ambis glandulosi-atomiferis et pilosulis sed infra densioriter pubescentibus nervis uterque densioriter pubescentibus, costa infra salienta, nervis secundariis infra subincrassatis in 5 jugis marginibus serrati-crenatis 3–4-dentatis per cm, racemis terminalibus 10–16 cm longis sparse pilosulis et glandulosis, pedunculis 3–3.5 cm longis (racemis secundariis 3.5–11 cm longis), verticellis 7–12, internodiis 1–2 cm longis, nodis 6–12 floriferis, bracteis foliosis oblanceolatis stipitatis ad apicem reductis in nodis inferioribus calycis superantibus, pedicelis 2–5 mm longis gracilibus, calycibus in flore 4.5–5 mm longis tubo 3–4 mm longo 1.9–2.2 mm

FIGURE 12. *Phyllostegia Ledyardii* St. John, from holotype. a, habit, $\times \frac{1}{2}$; b, fruiting calyx, $\times 3$; c, flower, $\times 3$; d, corolla throat and lobes, $\times 3$; e, pistil, $\times 5$; f, stamen, $\times 5$; g, h, i, seed, $\times 5$.

lato extra pilosulis et glandulosi-atomiferis intra glabris, lobis 1.5–2.2 mm longis 0.7–1.2 mm latis deltoidei-lanceolatis acutis extra et infra pilosulis, corollis valde bilabiatis extra pilosulis et glandulosi-punctatis, labia infera tripartita lobis lateralibus 2.5–2.7 mm longis latisque rotundatis loba infera 3.5 mm longa 4 mm lata semiorbiculari lobis intra glabris, labia supra 2.7 mm longa et lata rotundata, tubo 9–11.5 mm longo 2–2.5 mm diametro ad orificem exiguite dilatato intra lanuloso, filamentis minute capitati-glandulose pubescentibus, filamentis binis proximis 2.5 mm longis, filamentis binis distalibus 3 mm longis, loculis antherarum 0.5 mm longis 0.3 mm latis ovalibus glabris, stylo et stigmati 7.5 mm longo glabro, ovario 0.5 mm longo 0.7 mm lato depressi-globoso nigro glabro, nuculis 2 mm longis 1 mm latis in sectio late deltoideis nigris pagina dorsali 1–1.7 mm latis, calycibus in fructu 6–7 mm longo.

DIAGNOSIS OF HOLOTYPE: Branchlets all quadrangular, the angles rounded, the faces deeply unisulcate, pilosulous with hairs about 0.5 mm long; nodes more densely pilosulous with hairs 0.7 mm long; petioles 1–5 cm long, canaliculate on the upper side, white pilose and pilosulous; blades 3–8.5 cm long, 2–6 cm wide, thin chartaceous, ovate, cordate, acute at apex, both surfaces glandular atomiferous and pilosulous, more densely so beneath, the venation more densely pubescent on both faces, secondary vein branching immersed above, slightly salient below, in about 5 pairs, the margins serrate-crenate, with 3–4 teeth per cm; inflorescences racemose, terminal, the major ones 10–16 cm long, but the secondary ones from the axils of the uppermost vegetative nodes 3.5–11 cm long, all axes pilosulous and sparingly glandular; verticels 7–12; internodes 1–2 cm long, with 6–12 flowers at each node; peduncle 3–3.5 cm long; bracts foliose, oblanceolate, stipitate, at the lower nodes exceeding the calyx, but progressively smaller upwards; pedicels 2–5 mm long, slender; calyx in flower 4.4–5 mm long, narrowly campanulate, the tube 3–4 mm long, 1.9–2.2 mm in diameter, with many strongly raised veins, pilosulous and glandular atomiferous without, glabrous within, the lobes 1.5–2.2 mm long, 0.7–1.2 mm wide, deltoid lanceo-

late, acute, pilosulous on both sides; corolla strongly bilabiate, the lower lip tripartite; lateral lobes 2.5–2.7 mm long and wide, rotund; central lobes 3.5 mm long, 4 mm wide, semiorbicular; upper lip 2.7 mm long and wide, rotund; the tube 9–11.5 mm long, 2–2.5 mm in diameter, flaring slightly apically; corolla pilosulous and gland-dotted externally, glabrous within on the lobes but lanulose in the tube; stamens with minute capitate glandular pubescence on the filaments, the proximal pair with filaments 2.5 mm long, the other pair 3 mm long; anther cells 0.5 mm long, 0.3 mm wide, oval, glabrous; stigma glabrous; style 7.5 mm long, glabrous, included; ovary 0.5 mm long, 0.7 mm wide, depressed globose, black, glabrous; calyx in fruit 7 mm long, obconic; nutlets 2 mm long, 1 mm wide, dark, broadly triangular in cross section, the dorsal face 1.5–1.7 mm wide.

HOLOTYPE: Sandwich Island [Hawaii Island, slopes of Mauna Loa above Kealakekua, 1779, on Captain Cook's third voyage], *Dav. Nelson* (BM).

DISCUSSION: The most similar species is *P. stachyoides* Gray, var. *stachyoides*, of Maui and Hawaii, which may be recognized by having the blades 6–13 cm long, 3–8 cm wide, firm chartaceous, lance-ovate to oblong-lanceolate, the base rounded to subcordate, the apex cuspidate, acute to acuminate; whorls of inflorescence 10–14-flowered; pedicels 2–7 mm long; calyx 5–6.5 mm long in anthesis, cuneate basally, the lobes subulate, and the corolla tube 5–9 mm long, almost straight. On the other hand, *P. Ledyardii*, of the western slope of Hawaii, may be known by its blades 3–8.5 cm long, 2–6 cm wide, thin chartaceous, ovate, the base cordate, the apex acute; whorls of inflorescence 6–12-flowered; pedicels 2–5 mm long; calyx 4.5–5 mm long in anthesis, truncate basally, the lobes deltoid lanceolate; and the corolla tube 9–11.5 mm long, curved throughout at about 15°.

The species is doubtless now extinct, being known only from the single collection made in 1779 by the Mouna Roa (Mauna Loa) expedition. John Ledyard, a Connecticut Yankee, corporal of the marines, was in command of the shore party on the beach of Karakakooa

(Kealakekua) Bay. He initiated the expedition and took part in the 5-day exploration of the rugged, forested slope of the snow-capped volcano. Without his initiative the botanical discoveries would have been few indeed. This new species is named in tribute to John Ledyard.

Phyllostegia longimontis sp. nov. (subsect. *Holophylla*)

Figure 13

DIAGNOSIS HOLOTYPI: Ramulis quadrangulibus glabris, petiolis 2–3.5 cm longis gracilibus glabris supra profunde sulcatis, laminis 6.5–10 cm longis 3.5–5.2 cm latis chartaceis elliptici-obovatis apice abrupte breve acuminato basi acuta vel cuneata marginibus serratis supra costa adpressi-puberulenta cetera glabris nervis infra prominentibus, racemis terminalibus, nodis floriferis 5–10, internodis 17–45 mm longis, internodis supra strigulosus infra glabrescentibus, floribus 10–16 in verticillis, pedunculis 1–2 mm longis crassis deltoideis vel ligulatis 4–8-floriferis, pedicellis 7–15 mm longis filiformibus sparse strigulosus, calycibus in flore 7 mm longis extra sparse adpressi-strigulosus valde multi-costatis in basi rotundatis intra glabris, tubo 4–5.5 mm longo 3.5–4.5 mm diametro anguste campanulato in orifici pauce dilatato, lobis 5 et 1.2–2 mm longis 1–1.5 mm latis ovatis late obtusis, tubo corollae 8.5 mm longo in basi 1.5 mm diametro in orifici 3 mm diametro et dilatato extra strigulosus intra puberulenti, lobis corollae 4 lateralibus 2 ciliolatis, lobis lateralibus 3 mm longis 3–3.5 mm latis rotundatis, loba proxima 4 mm longa 4–6 mm lata subrotundata, loba distali 4 mm longa et lata rotundata lobis lateralibus et distalibus connatis labia infera 6–7 mm longa, lobis lateralibus binis 3 mm longis 3–3.5 mm latis suborbicularibus, loba distali 4 mm longa et lata suborbiculari, staminibus 4, filamentis infra puberulentibus supra capitati-glandulosi-puberulentibus, filamentis jugalis proximis 12 mm longis liberis 4.5 mm alteris 11 mm longis sed liberis 5.5 mm, connectivis capitati-glandulosi-puberulentibus, pistillis glabris, ovariis 1.8 mm altis in apice 2 mm diametro in basi pauce angustioribus, stylo 11 mm longo, 0.6 mm diametro subulato, stigmatibus bifidis ramulis brevibus truncatis, fructubus ignotis.

DIAGNOSIS OF HOLOTYPE: Branchlets quadrangular, with rounded angles, the faces deeply unisulcate, glabrous; petioles 2–3.5 cm long, slender, glabrous, deeply sulcate above; blades 6.5–10 cm long, 3.5–5.2 cm wide, elliptic-obovate, the apex abruptly short acuminate, the base acute to cuneate, the margins serrate and each tooth acute to minutely mucronulate, both surfaces glabrous, except for the midrib above which is appressed puberulent, the venation obscure above, but prominent below and the midrib and secondaries salient; inflorescence a terminal sessile raceme with 5–10 fertile nodes; internodes 17–45 mm long, the upper ones sparsely strigulose, but the lower ones glabrescent; whorls with 10–16 flowers and each 4–8 on a common thick deltoid or ligulate peduncle 1–2 mm long; pedicels 7–15 mm long, filiform, sparsely strigulose; calyx in flower 7 mm long, campanulate, rounded at the base, sparsely appressed strigulose without, glabrous within, strongly many ribbed, the tube 4–5.5 mm long, 3.5–4.5 mm in diameter, the 5 lobes 1.2–2 mm long, 1–1.5 mm wide, ovate, broadly obtuse; corolla 10–12 mm long, strigulose without, puberulous within; the tube 8.5 mm long, 1.5 mm in diameter at base, 3 mm at the throat, 4-lobed, the lobes ciliolate, the single proximal lobe 4 mm long, 4–6 mm wide, semiorbicular, the 3 distal lobes united, forming a lower lip 5 mm long, 4.5 mm wide, the 2 lateral lobes 3 mm long, 3–3.5 mm wide, suborbicular; distal lobe 4 mm long and wide, suborbicular; stamens 4; filaments puberulous below, capitate glandular puberulent above and so also on the connective; proximal filaments 12 mm long, but adnate to the corolla for 6 mm; distal filaments 11 mm long and adnate for 6 mm; anthers with 2 cells 1 mm long; pistil glabrous; style 11 mm long, subulate; stigma bifid, with very short truncate branches; ovary 1.8 mm tall, 2 mm in diameter, narrower below. Fruit unknown.

HOLOTYPE: Sandwich Islands [Kona, Hawaii Island], *Dav. Nelson* (BM).

DISCUSSION: This new species is related to the well-known *P. glabra* (Gaud.) Benth., var. *Macraei* (Benth.) Sherff, which is abundant on Oahu, and rare on Lanai and Maui. This variety

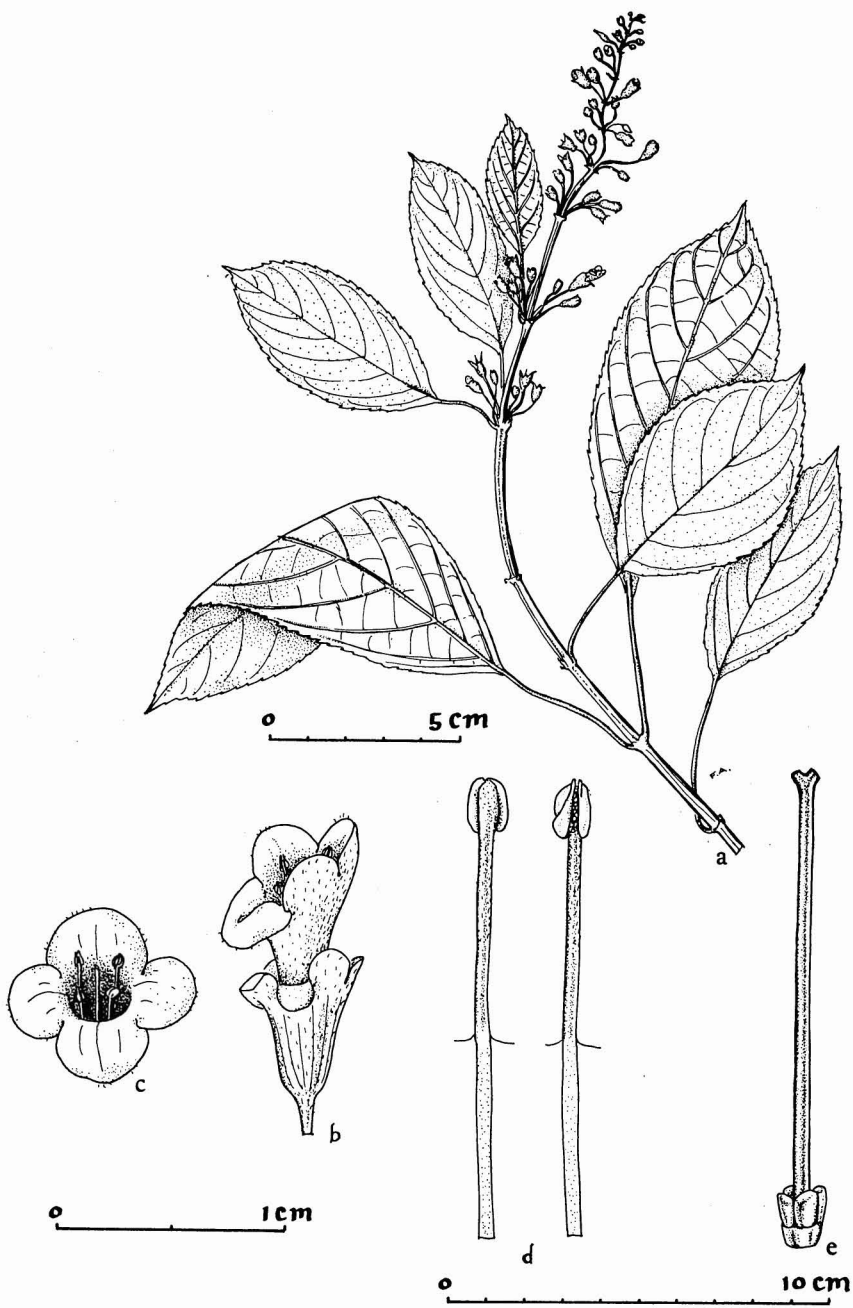


FIGURE 13. *Phyllostegia longimontis* St. John, from holotype. *a*, habit, $\times \frac{1}{2}$; *b*, flower, $\times 3$; *c*, corolla throat and lobes, $\times 3$; *d*, stamens, $\times 5$; *e*, pistil, $\times 5$.

is known by being wholly glabrous; blade base rounded (or less commonly subcordate to widely cuneate); flowers constantly 6 per whorl, each axil with 3 on a common filiform peduncle 4–8 mm long, with subulate, persistent bracts 1.5–2 mm long; pedicels 3–11 mm long; calyx tube 2–3 mm long; calyx lobes 1–2 mm long, narrowly deltoid, acute; filaments puberulous below, glabrous above. *P. longimontis* differs by being somewhat hairy, the blades appressed puberulent above on the midrib, the base cuneate; raceme sparsely strigulose in the upper portion; flowers 10–16 per whorl, with 4–8 in each axil on a thick deltoid or ligulate common peduncle 1–2 mm long, bearing subulate, puberulent, caducous bracts 0.7–1.5 mm long; pedicels 7–15 mm long, sparsely strigulose; calyx tube 4–5.5 mm long, sparsely appressed strigulose; calyx lobes 1.2–2 mm long, ovate, broadly obtuse; corolla strigulose without, puberulent within; filaments puberulous below, capitate glandular pubescent on the upper portion; and the anther connective capitate glandular pubescent.

The species has not been collected since 1779, and is now evidently extinct.

The new epithet is coined from the Latin *longus*, long; and *mons*, mountain, and it refers to the type locality, on Mauna Loa, which is Hawaiian for mountain long.

Phyllostegia villosa sp. nov. (sect. *Lateriflorae*)
P. floribunda sensu Sherff, excl. typus, non Benth, 1835.

Figure 14

DIAGNOSIS HOLOTYPE: Frutex est, ramulis 2–3 mm diametro quadrangularibus dense albi-hirsutis, caule principali 3–4 mm diametro quadrangulari angulis rotundatis lateribus sulcatis dense albi-hirsutis, nodis paullo incrassatis, internodis 2.5–4 cm longis, petiolis 3.6–4.3 cm longis dense adscendente albi-hirsutis, laminis 10–13.6 cm longis 4.8–5.5 cm latis late lanceolatis apice acuto basi rotundata subtiliter chartaceis supra obscure viridibus et hirsutulis et in nervis principalibus dense hirsutulis infra pallide viridibus et molliter puberulis marginibus crenulatis nervis secundariis 8–10 in dimidio quoque curvatis adscendentibus, laminis infra copiose resinosi-atomiferis, racemis 3.5–6 cm longis 1–2

in axi quoque plerumque in ramis vetustioribus nudis, pedunculis 6–9 mm longis, rachidibus et pedicellis dense albi-hispidis et copiose resinosi-atomiferis, nodis omnibus cum 2 floribus, pedicellis 6–9 mm longis, bracteis 4–7 mm longis lanceolatis foliaceis, calycibus in flore 7.5–8 mm longis copiose resinosi-atomiferis et albi-hispidis ab initio pilis glandulosi-capitatis, lobis 3–4 mm longis anguste lanceolatis, tubo in flore anguste campanulato, corollis 16 mm longis bilabiatis 4-lobatis tubo 10 mm longo subtubuloso et in fauce 3 mm diametro labia inferiori 4 mm longa 5 mm lata suborbiculari, 2 lobis lateralibus 4 mm longis 3 mm latis ovatis, labia superiori 4 mm longa et lata suborbiculari emarginata, staminibus 4 in jugis binis subaequalibus, filamentis 9 mm longis subulatis in parte $\frac{2}{3}$ inferiori compressis, antheris 0.8–1 mm longis breviter bifidis, ovario 1.2 mm longo ellipsoideo profunde 4-lobato, calycibus in fructu majoribus hemisphaericis, nuculis 2.9–3.2 mm longis 1.9–2.2 mm latis 1.3–1.7 mm crassis subnigris exlucidis.

EXPANDED DESCRIPTION: Suffrutescent and 3–6 dm tall; leafy branches 3–4 mm in diameter, quadrangular, with broad rounded angles and deep intervening valleys, densely white hirsute; internodes 1–4.5 cm long; petioles 3–6.5 cm long, densely ascending white hirsute; blades 10–15 cm long, 4.5–8 cm wide, lanceolate to ovate lanceolate, acute, the base rounded or abruptly cuneate, thin chartaceous, above dark green and hirsutulous on the surface, and densely so on the principal veins, below pale green, and minutely glandular punctate, sparsely hirsute on the intervals and veins, the margins unevenly crenate; racemes 1.8–6 cm long, 2–3 cm in diameter, 1–2 at an axil, produced in bud from the lower leafy axils, then in flower and fruit from the older naked axils, shaggy white hispid and abundantly resinous dotted; bracts 3–5 mm long, linear-ob lanceolate, foliaceous, opposite, subtending single flowers; pedicels 3–7 mm long; calyx in flower 5.5–7 mm long, abundantly resinous dotted and spreading white hirsute, the hairs at first glandular capitate; the tube 2.8–3.2 mm long, 1.7–2 mm in diameter, narrowly campanulate, strongly 10-ribbed; the lobes 2–2.5 mm long, linear-lanceolate; calyx in fruit 6–7 mm long, the tube broadly turbinate to

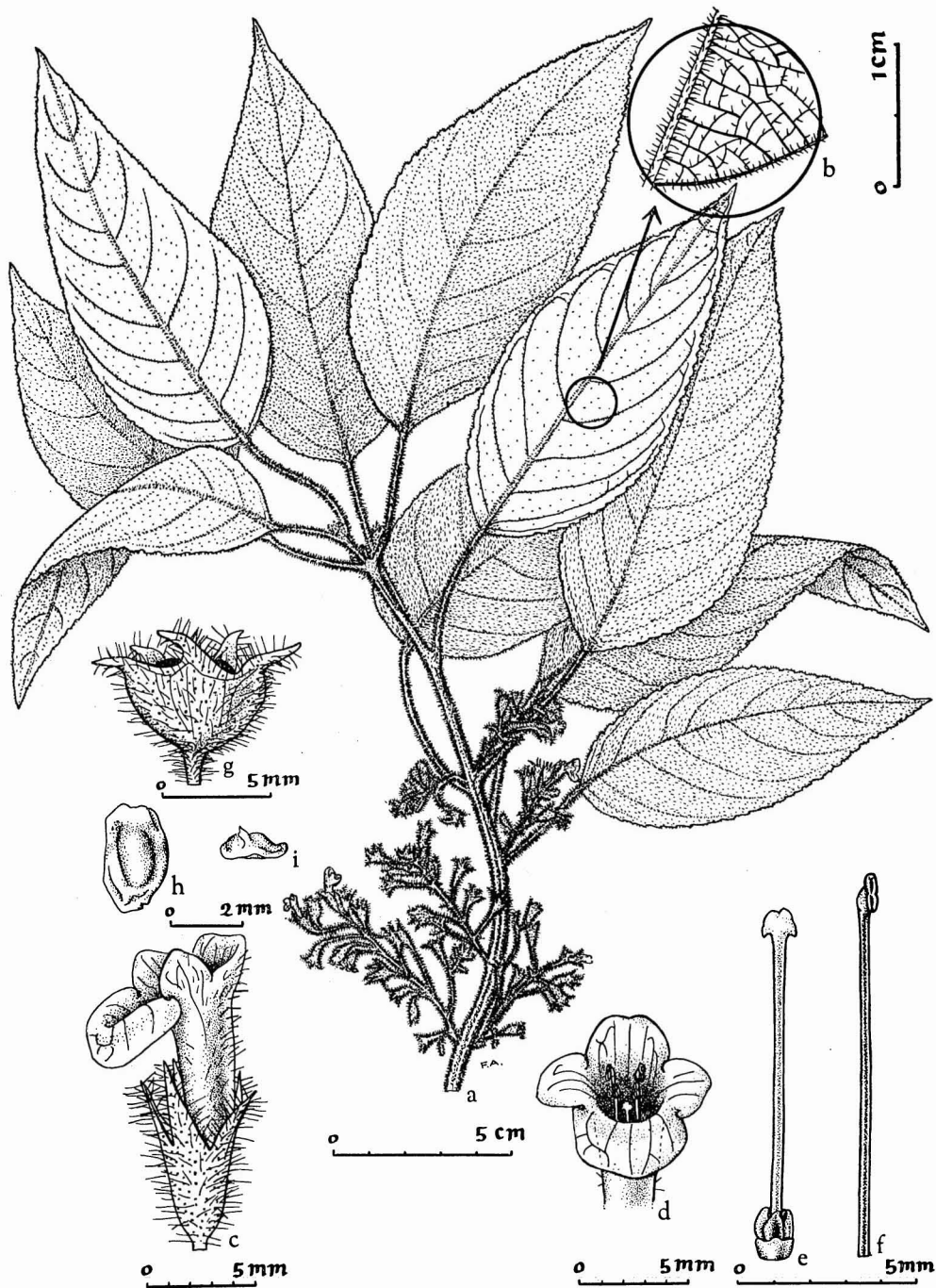


FIGURE 14. *Phyllostegia villosa* St. John, from holotype. *a*, habit, $\times \frac{1}{2}$; *b*, blade underside, $\times 2$; *c*, flower, $\times 3$; *d*, corolla throat and lobes, $\times 3$; *e*, pistil, $\times 5$; *f*, stamen, $\times 5$; *g*, fruiting calyx, $\times 3$; *h*, *i*, seeds, $\times 5$.

hemispheric; corolla 16 mm long, dark magenta or pinkish, bilabiate, 4-lobed, the tube 10 mm long, subtubular, 3 mm in diameter at the throat; lower lip 4 mm long, 5 mm wide, suborbicular; 2 lateral lobes 4 mm long, 3 mm wide, ovate; upper lip 4 mm long and wide, suborbicular, emarginate; stamens in 2 pairs, only slightly unequal in length; filaments 9 mm long, subulate, flattened in the lower 2/3; anthers 0.8–1 mm long, dimidiate; style 8 mm long, filamentous; stigma 0.8 mm wide, shortly bifid; ovary 1.2 mm long, ellipsoid, deeply 4-lobed; nutlets 2.9–3.2 mm long, 1.9–2.2 mm wide, 1.3–1.7 mm thick, blackish, dull, sector-shaped.

HOLOTYPE: Hawaiian Islands, Hawaii Island, upper edge of Waipio Valley, along the trail from back of Waimea, 4,000 ft alt., June 1910, *J. F. Rock 8,352* (BISH).

SPECIMENS EXAMINED: Hawaiian Islands, Hawaii Island, between Glenwood and 29 Miles, Kilauea, wet dark jungle, June 15, 1929, *O. Degener 5,383* (BISH); ditto, June 18, 1929, *Degener 5,384* (BISH); between Glenwood and Volcano House, Kilauea, dark wet jungle, July 23, 1926, *Degener 5,453* (BISH); Panewa Forest, Aug. 28, 1950, *Amy Greenwell* (Degener's no.) *20,953* (BISH); mountains behind Pahala, Kau, Aug. 9–11, 1911, *C. N. Forbes 421.H* (BISH); Kohala Mts., Waimea, Sept. 1911, *Forbes 493.H* (BISH); Kiiipu (= Puu Kipu), June 26, 1915, *Forbes 942.H* (BISH); Hilo, Apr. 1871, *W. Hillebrand & J. M. Lydgate*, ex Hb. Lydgate (BISH); Parker Ranch, Holokaiea (= Honokaia) Gulch, July 10, 1909, *J. F. Rock 4,091*, and *4,094* (doubtless duplicates) (BISH); woods above Awini, Kohala, June 1910, *Rock 8,395* (BISH); forest of Kilauea, Aug. 1917, *Rock 13,002* (BISH); 23 Miles, Hilo, Aug. 1917, *Rock s.n.* (BISH).

DISCUSSION: *P. villosa* is most closely related to *P. floribunda* Benth., of the western, lower slope of Mauna Loa, a species with the blades 12–22 cm long, 6.5–11 cm wide, lance-ovate, the base rounded or a little subcordate, above appressed hirsutulous on the veins, below appressed short pilosulous on the midrib and to the smallest veinlets; peduncles 9–25 mm long,

capitate glandular hirsutulous, bracteoles 1.5–4 mm long, elliptic, similarly hirsutulous, elliptic, calyx in anthesis 3.5–5 mm long, puberulent and capitate glandular hirsutulous, the tube 1.5–1.9 mm wide, the lobes 0.8–1.3 mm long, in fruit the tube semiorbicular; corolla puberulous without. *P. villosa* has the blades 7.5–13 cm long, 3–6 cm wide, elliptic, the base abruptly cuneate, above sparsely and below markedly erect hispid on the principal veins; peduncles 2.5–5 mm long, these and all the axes densely villous-hispid; bracteoles 3.5–6.5 mm long, villous-hispid, obovate to oblanceolate; calyx in anthesis 5–6.5 mm long, villous hispid with hairs at first capitate glandular, and atomiferous glandular without, the tube 0.6–0.7 mm wide, the lobes 2.5–2.7 mm long, in fruit the calyx 6–7 mm long, the tube semi- orbicular; corolla strigulose, and at tip villous hispid and apically glandular without.

The collections cited above were studied by Sherff, and in his monograph of the genus (1935: 55) were classified as *P. floribunda* Benth. Since they differ from that species in numerous details, they are here removed and made a distinct species.

The new species is named *villosa*, because of its villous pubescence.

Stenogyne biflora (Sherff) comb. nov. (sect. *Sarmentosae*)

S. scrophularioides Benth., var. *biflora* Sherff, *Am. Journ. Bot.* 21: 70, 1934; B. P. Bishop Mus., *Bull.* 136: 81–82, fig. 29, 1935.

Figure 15

ORIGINAL DIAGNOSIS: "Folia numerosa, quam internodia longiora, lamina rotundato-ovata, basi subcordata, apice obtusa, supra sparsim infra paulo densius adpresso-hispida, 2.5–3.7 cm. longa et 1.8–2.8 cm. lata. Verticillata biflora, pedicellis pubescentibus. Calyx usque ad 1.2 cm. longus, lobis plus minusve obtusis. Corolla non visa. Achaenia oblongo-cuneata, apice irregulariter corniculata, circ. 4 mm. longa."

DESCRIPTION OF NELSON SPECIMEN: Branchlets sharply 4-ribbed-quadrangular, sparingly hispidulous on the faces, the angles marginate,

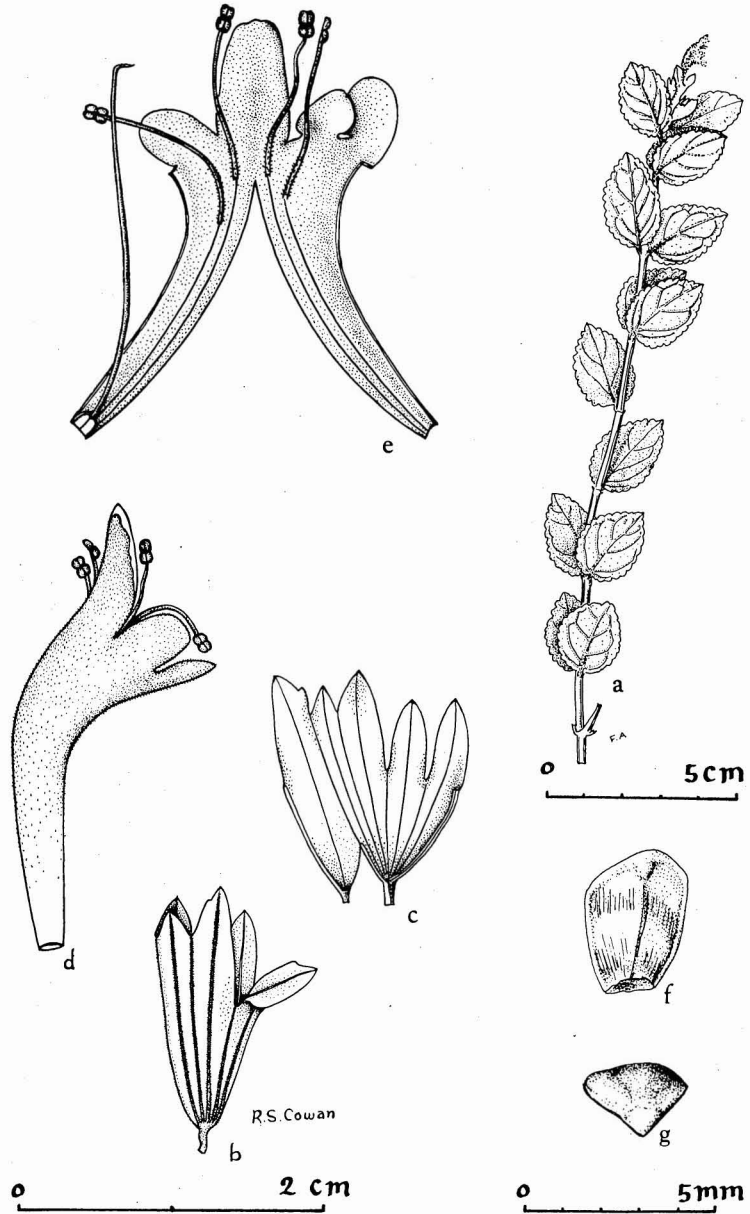


FIGURE 15. *Stenogyne biflora* (Sherff) St. John, from holotype. *a*, habit, $\times \frac{1}{2}$; *b*, *c*, calyx, $\times 2$; *d*, *e*, corolla and stamens, $\times 2$; *f*, *g*, seed, $\times 5$. Parts *b*-*e* by R. S. Cowan.

with remote ascending spinelike hairs; nodes hispid; petioles 2-4 mm long, deeply canaliculate above, long hispid ciliate on the margins; blades 2.2-3.1 cm long, 1.5-2.1 cm wide, ovate, above sparsely hispid, below sparsely hispidulous, then glabrate, the apex acute, the base cordate, the margins crenate-dentate, venation

impressed above, salient below, secondary veins 4-6 in each half, curved ascending and inarched interconnecting; flowers 1-3 in each of the upper axils; pedicels 2-7 mm long, hispidulous; calyx in flower with the tube 4-6 mm long, 3 mm wide, oblanceoloid, sparsely hispid without, strigose within, the 5 lobes 2-6 mm long,

irregular, sparsely hispid without, strigose within; proximal lobe 2 mm long, 1.5 mm wide, the other lobes 5–6 mm long, 2 mm wide; corolla 22–28 mm long, densely hispidulous without, glabrous within, the tube 12–22 mm long, 1.5 mm in diameter at base, 6–7 mm in diameter at the throat, decurved at about 50°, the lobes unequal, and the lateral ones particularly variable in shape; proximal lobe 5.5–8 mm long, 4 mm wide, oval to oblong oval, truncate to rounded apically; lateral lobes 2.5–5 mm long, 2.5–3 mm wide, ovate to oblong-ovate, obtuse; distal lobe 3–4.5 mm long, 2–4 mm wide, ovate to sub-orbicular; proximal pair of stamens with filaments 6–9.5 mm long, 0.4 mm in diameter, sparsely hispid on the enclosed parts; distal stamens with filaments 7–10.5 mm long; anthers 4.5 mm long, glabrous, the cells superposed; ovary 7 mm high, 7 mm in diameter, glabrous; style 25 mm long, glabrous; stigma 1 mm long, unilateral, geniculate at right angles to the style; calyx in fruit accrescent, subglobose, the tube 6–7 mm wide; nutlets 3.5–4 mm long, 2.5 mm wide, 2 mm thick, glabrous, smooth, dark, triangular in cross section. (Color of the corolla not evident.)

HOLOTYPE: Hawaiian Islands, Island of Hawaii, *William Hillebrand 342* (K).

SPECIMENS EXAMINED: Sandwich Island [Hawaiian Islands, Hawaii Island], *Dav. Nelson* (BM).

DISCUSSION: This plant was described by Sherff as a new variety, based solely upon a collection from the island of Hawaii by Hillebrand, lacking corollas and without more precise geographic data. This classification was a reasonable one for the incomplete material. Here is offered a new study of the taxon, giving details of the flowers. Now it is possible to make a full comparison of the two. It is found that *S. scrophularioides*, var. *scrophularioides*, of the Hilo District in Hawaii, has the petioles 7–22 mm long, at first ascending hirsutulous, but soon glabrate; blades glabrous, with the base truncate or widely cuneate, the margins sharply crenate-serrate, the teeth apiculate; pedicels 5–8 mm long, glabrous; calyx glabrous, the lower lobes

1–1.5 mm long; corolla tube 8–9 mm long; filaments almost glabrous; and the anthers 1 mm long. *S. biflora*, of the Kona side of Hawaii, differs by having the petioles 2–4 mm long, long hispid on the margins; blades above sparsely hispid, glabrate, below sparingly hispidulous, the base cordate, the margins crenate-dentate; pedicels 2–7 mm long, hispidulous; calyx sparsely hispid without, the lower lobes 4–6 mm long; corolla tube 12–22 mm long; filaments sparsely hispid below; and the anthers 4.5 mm long.

Because of the numerous and significant differences from *S. scrophularioides*, the var. *biflora* is here raised to specific status, as *S. biflora*.

Stenogyne hirsutula sp. nov. (sect. *Sarmen-tosae*)

Figure 16

DIAGNOSIS HOLOTYPE: Liana 7 m longa est, ramulis 2–3 mm diametro glabris primo 4-angulis demum teretibus laevibus pallide sub-badiis, nodis incrassatis, internodis 1.2–6.8 cm longis, petiolis 15–22 mm longis gracilibus glabris supra canaliculatis, laminis fere 3.8–4 cm longis 2.1–2.8 cm latis ellipticis basi rotundata marginibus remote apiculati-serrulatis vel denticulatis crasse chartaceis supra obscure viridibus remote albi-hispidis nervis depressis infra viridibus remote albi-hispidis nervis elevatis prominentibus nervis lateralibus 3–4 in dimidio quoque curvatis adscendentibus et interconnectis, floribus ex axilibus foliosis 6 in verticilli quoque, pedicellis 12–14 mm longis gracilibus glabris, "floribus rubris," calycibus in fructu 7 mm longis suborbicularibus remotiore hirsutis sed in aspectu glabro, 5 lobis 2.5 mm longis deltoideis intra albi-hirsutulibus, nuculis 3.3 mm longis 2.3–2.8 mm latis 1.5 mm crassis tetrasphaericis obscuris laevibus.

DIAGNOSIS OF HOLOTYPE: KNOWN only from a poor, battered specimen, showing stems, parts of three leaves, and five fruiting calyces. Vine 7 m long; branchlets seen 32 cm long, 2–3 mm in diameter, glabrous, at first 4-angled, later terete, smooth, pale brownish; nodes enlarged; internodes 1.2–6.8 cm long; petioles

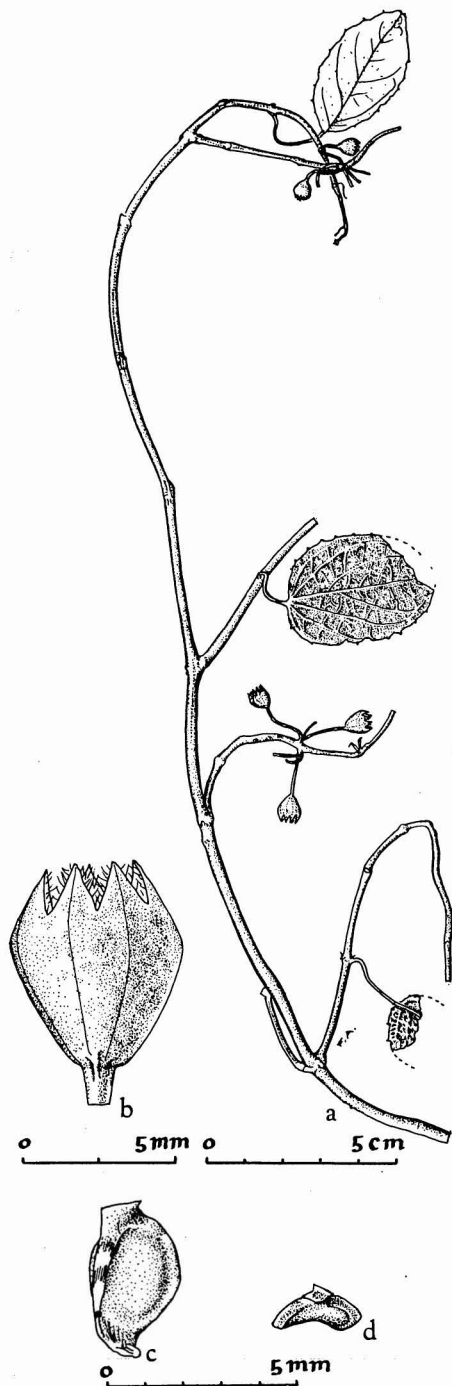


FIGURE 16. *Stenogyne hirsutula* St. John, from holotype. *a*, habit, $\times \frac{1}{2}$; *b*, fruiting calyx, $\times 4$; *c*, *d*, seed, $\times 5$.

15–22 mm long, slender, glabrous, channeled above; blades about 3.8–4 cm long, 2.1–2.8 cm wide, elliptic, the base rounded, the margins remotely apiculate serrulate or denticulate, thick chartaceous, above dark green, remotely white hispid, the veins impressed, below green, remotely white hispid, the veins raised and prominent, the lateral veins 3–4 in each half, curved ascending and interconnected; flowers borne from the leafy axils, 6 in each whorl; pedicels 12–14 mm long, slender, glabrous; “flowers red,” calyx in fruit 7 mm long, suborbicular, very remotely hirsute, appearing glabrous; the 5 lobes 2.5 mm long, deltoid, white hirsutulous within; nutlets 2.3 mm long, 2.3–2.8 mm wide, 1.5 mm thick, tetraspheric, dark, smooth.

HOLOTYPE: O-whai-hee [Hawaiian Islands, Hawaii Island, west slope of Mauna Loa], in montibus, planta volubilis saepe 20 pedes, fl. rubri, *David Nelson* (BM).

DISCUSSION: *S. hirsutula* is most similar to *S. scrophularioides* Benth., var. *scrophularioides*, of Hawaii Island, a species with the young stems retrorsely setose; petioles 7–15 mm long; blades 2.5–3.7 cm long, ovate, mostly subpedately 3–(5)-lobed, more or less ciliate; calyx in fruit about 6 mm long, the lobes glabrous. *S. hirsutula* has the stems glabrous; petioles 15–22 mm long; blades about 3.8–4 cm long, elliptic; calyx in fruit 7 mm long, the lobes white hirsutulous within.

S. hirsutula also resembles *S. rotundifolia* Gray, var. *rotundifolia*, of eastern Maui, a species with the internodes spreading hirsute; petioles 8–18 mm long, hirsute; blades 2–3.8 cm long, ovate-orbicular, the margins crenate denticulate; calyx hirsutulous without, glabrous within; nutlets 4 mm long. *S. hirsutula* has the internodes glabrous; petioles 15–22 mm long, glabrous; blades 3.8–4 cm long, elliptic, the margins remotely apiculate-serrulate or -denticulate; calyx remotely hirsute without, the lobes white hirsutulous within; nutlets 3.3 mm long.

The new epithet is given with reference to the hirsutulous calyx lobes.

LOBELIACEAE

Clermontia konaensis sp. nov. (sect. *Clermontioides*)

Figure 17

DIAGNOSIS HOLOTYPE: Frutex est, ramulis glabris 5–8 mm diametro, petiolis 25–33 mm longis glabris vel ad apicem in latere inferiori sparse pilosis anguste marginatis, laminis 12–17 cm longis 2–3 cm latis chartaceis lineari-oblongeolatis apice acuto cum mucroni minuto basi longe decurrenti margini minute denticulato dentibus plerumque mucronulatis nervis supra subobscuris infra prominentibus, laminis supra glabris infra in costa et nervis secundariis sparse hirtellis costa glabrescenti, inflorescentiis axillaribus 2-floriferis, pedunculo 28–31 mm longo glabro vel sparse hirsutulo, pedicellis fere 26–32 mm longis sparse hirsutulis, bracteolis 2.2 mm longis 0.4 mm latis lineari-lanceolatis glabris 1/3 ex basi affixis, hypanthio 11 mm longo et lato glabro, lobis calycis 6–10 mm longis in basi 3 mm latis lanceolatis acuminatis sparse minute ciliolatis, corollis 45 mm longis glabris, tubo filamentarum 37 mm longo glabro, antheris superioribus 15 mm longis glabris, antheris inferioribus 12 mm longis in apice penicillatis cum pilis 1.5 mm longis, fructu immaturo 9 mm diametro late campanulato.

DIAGNOSIS OF HOLOTYPE: Shrub with the branchlets glabrous, 5–8 mm in diameter; petioles 25–33 mm long, glabrous or sparsely pilose on the lower surface in the apical portion, narrowly marginate; blades 12–17 cm long, 2–3 cm wide, chartaceous, linear oblanceolate, the apex acute with a minute mucro, the base long decurrent, the margin minutely denticulate, the teeth usually mucronulate, venation somewhat obscure above, prominent below; blades above glabrous, below sparingly hirtellous on and along the costa and the secondaries, the costa glabrescent; inflorescences axillary, 2-flowered; peduncle 28–31 mm long, glabrous to sparsely hirsutulous; pedicels about 26–32 mm long, sparsely hirsutulous; bracteoles 2.2 mm long, 0.4 mm wide, linear-lanceolate, glabrous, affixed about 1/3 way from the base; hypanthium 11 mm long and wide, glabrous; calyx lobes 6–10 mm long, 3 mm wide at base, linear lanceolate, acuminate, sparingly minutely

ciliolate; corolla 45 mm long, glabrous; filament tube 37 mm long, glabrous; upper anthers 15 mm long, glabrous; lower anthers 12 mm long, and at apex penicillate with hairs 1.5 mm long; young fruit 9 mm in diameter, broadly campanulate.

HOLOTYPE: Sandwich Island. [Hawaiian Islands, Hawaii Island], *David Nelson* (BM).

DISCUSSION: *C. konaensis* is a member of the section *Clermontioides*, as is its closest relative, *C. pyrularia* Hbd., a species found on the northeast side of Mauna Kea, Hawaii, and one with the blades 20–28 cm long, 4.5–5 cm wide, the margins mucronate crenate; peduncles 35–60 mm long, glabrous, divergent or nodding, (1–) 2–3-flowered; pedicels 8–20 mm long; hypanthium 14–20 mm long, puberulent; calyx lobes 4–6 mm long; corolla puberulent. *C. konaensis*, of the west side of Mauna Loa, has the blades 12–17 cm long, 2–3 cm wide, the margins minutely appressed mucronate toothed; peduncles 28–31 mm long, glabrous to sparsely hirsutulous, ascending, 1-flowered; pedicels 28–32 mm long; hypanthium 11 mm long, glabrous; calyx lobes 6–10 mm long; corolla glabrous.

The new epithet is formed from Kona, and *-ensis*, the Latin adjectival geographic suffix. Kona is the name of the district containing the type locality.

Cyanea Nelsonii sp. nov. (sect. *Pilosae*)

Figure 18

DIAGNOSIS HOLOTYPE: Laminis 35 cm longis 7.3–7.5 cm latis lineari-oblongeolatis tenuiter chartaceis supra obscura viridibus glabris non scabris infra in intervallis glabris sed nervis hirsutulis basi gradatim cuneatis marginibus 1/3–2/5-crenati-lobatis marginibus lobis sinuatis, pedunculo plus 4 cm longo, pedicello 12 mm longo sparse puberulo, lobis calycorum 3–3.5 mm longis anguste deltoideis foliaceis, corolla 5 cm longa hamatifoliformi, lobis et parte supera tubi puberulentibus, lobis 15–20 mm longis linearibus, tubo filamentarum et antheris glabris, antheris connatis superis 11 mm longis inferis 8.5 mm longis penicillatis, hypanthio

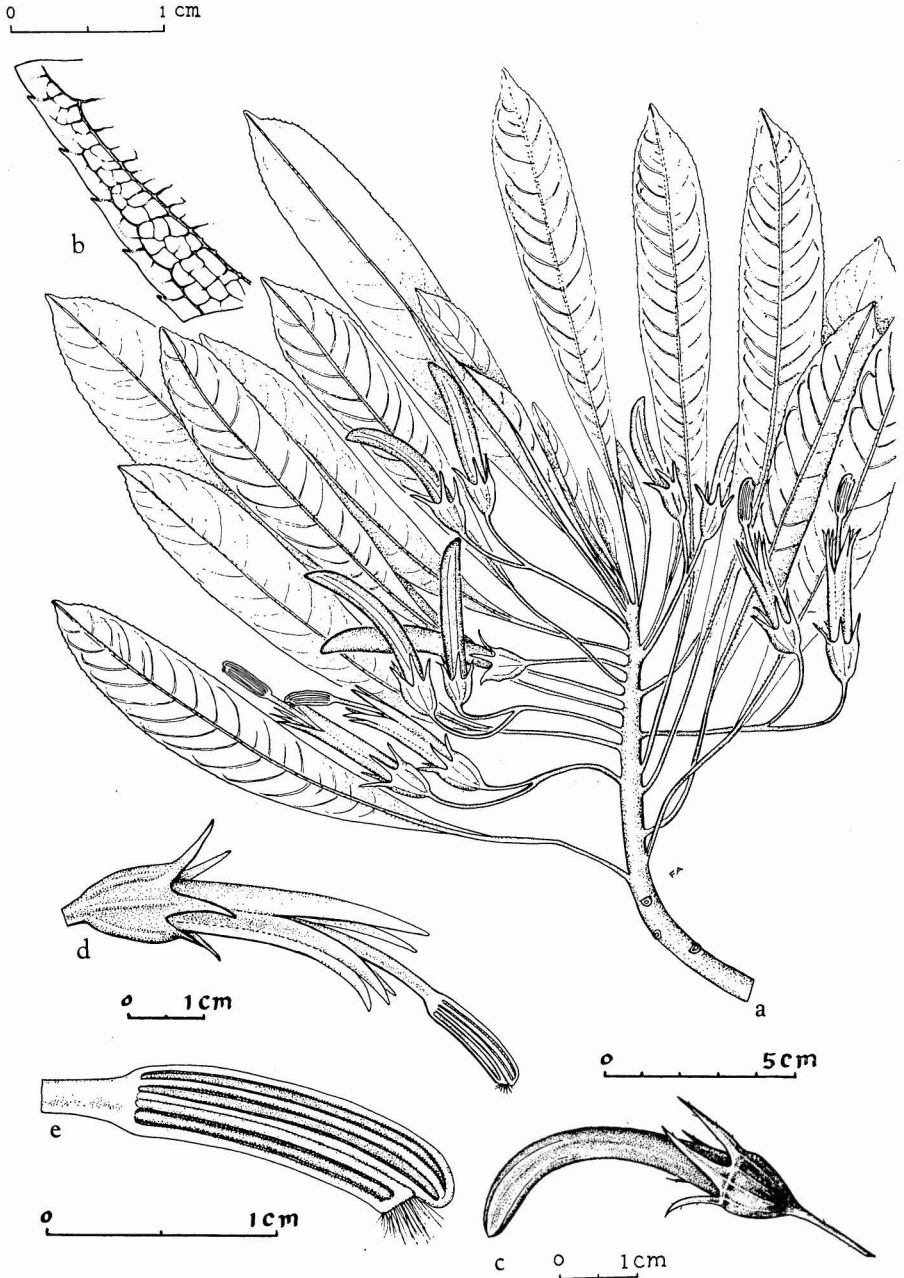


FIGURE 17. *Clermontia konaensis* St. John, from holotype. *a*, habit, $\times 1$; *b*, leaf venation, $\times 2$; *c*, bud, $\times 1$; *d*, flower, $\times 1$; *e*, anthers, $\times 3$.

6 mm longo anguste turbinato, caulibus fructibusque ignotis.

DIAGNOSIS OF HOLOTYPE: Blades 35 cm long, 7.3–7.5 cm wide, linear oblanceolate, thin char-

taceous, above dark green, glabrous, not scabrous, below with the intervals glabrous and the veins hirsutulous, the base gradually cuneate, the margin crenately lobed $1/3$ – $2/5$ way to the midrib, and the margin of the lobes sinuate;

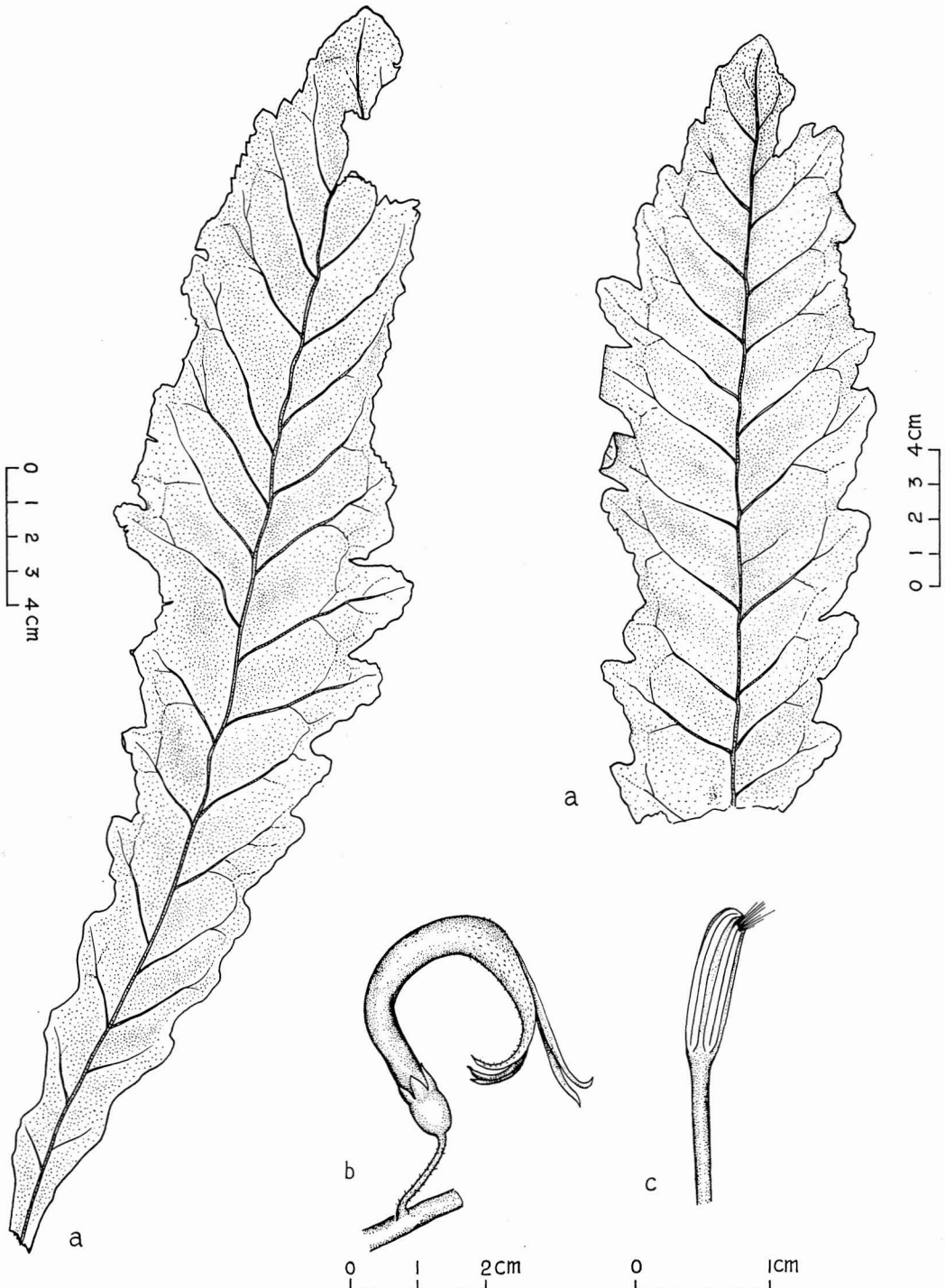


FIGURE 18. *Cyanea Nelsonii* St. John, from holotype. *a*, leaf, $\times \frac{1}{2}$; *b*, flower, $\times 1$; *c*, filament column and anthers, $\times 2$.

peduncle more than 4 cm long; pedicel 12 mm long, sparsely puberulent; calyx lobes 3–3.5 mm long, narrowly deltoid, foliaceous; corolla 5 cm long, 5 mm wide (when dried), sharply curved and hamatiform, the lobes and upper tube puberulent, the lobes 15–20 mm long, linear; filament tube and projecting anther sides glabrous; anthers united, the upper ones 11 mm long, the lower 8.5 mm long, penicillate; hypanthium 6 mm long, narrowly turbinate; stem and fruit unknown.

HOLOTYPE: Sandwich Islands [Hawaiian Islands, Hawaii Island], *Dav. Nelson* (BM).

DISCUSSION: The new species belongs in the section *Pilosae*. The nearest relative is *C. stictophylla* Rock, based only upon *Rock 10,055* from Kaiholena, in Kau, on the southern slopes of Mauna Loa. This older species has the blades 20–50 mm wide, the texture firm chartaceous, the margin crenately lobed 1/10–1/5 way to the midrib; peduncles 1–2.5 cm long; calyx lobes 2 mm long, triangular; corolla yellowish white (other details of perianth and androecium unknown); hypanthium puberulous. In contrast, *C. Nelsonii* has the blades 73–75 mm wide, the texture thin chartaceous, the margin crenately lobed 1/3–2/5 way to midrib; peduncle more than 4 cm long; calyx lobes 3–3.5 mm long, narrowly deltoid; corolla apparently dark magenta; and the hypanthium glabrous. Since *C. stictophylla* has a smooth stem, one might perhaps infer that *C. Nelsonii* would be similar in this regard. The material of this new species is meager, but it is clearly distinct from any previously described species. Because of long continued grazing, and other agricultural exploitation, there has been extensive deforestation on western Hawaii. It is probable that the habitat of *C. Nelsonii* has been destroyed, and that the species has long been extinct.

The new epithet is given in honor of the collector, David Nelson, botanist on Captain Cook's third voyage, and the first botanist to collect on Hawaii.

COMPOSITAE

Lipochaeta scabra sp. nov. (sect. *Lipochaeta*)

Figure 19

DIAGNOSIS HOLOTYPE: Frutex ultra 23 cm altus erectus late ramosus est, caulibus adpresse albi-hispidulis, ramulis axillaribus oppositis sed in omni jugi ramulis inaequalibus, ramulis et foliis adpresse albi-hispidulis, nodis incrassatis, internodis 1–4 cm longis, petiolis 3–6 mm longis anguste alatis, laminis 2.2–3.7 cm longis 1.5–3.2 cm latis firme chartaceis ovatis vel deltoidei-ovatis acutis basi lata rotundata vel truncata serratis vel dupli-serratis (foliis paucis majoribus subtrilobatis) supra viridibus adpresse hispidulis infra viridibus et adpresse hispidulis et cum nervis elevatis, nervis secundariis 4–5 in dimidio quoque curvatis adscendentibus, capitulis 3–7 in cyma, pedunculis gracilibus eis lateralibus 2.5–3.5 cm longis, capitulis radiatis et in flore fere 12 mm diametro 4–5 mm altis, phyllariis in seriebus duobus eis exterioribus 5 et 4 mm longis elliptici-ovatis firmis viridibus et adpresse albi-hispidulis illis interioribus simulantibus, floribus ligulatis circa 8 luteis, ligulis 6.5 mm longis 3 mm latis oblongi-ellipticis apice tridentato cum 2 nervis fortibus longitudinalibus et 8 alteris debilibus, tubo 2 mm longo, aristis pappi 2 subulatis 0.3 mm longis ascendente hispidulis, stylo 1.2 mm longo, 2 stigmatibus 1 mm longis teretibus, achaeneis radiatis juvenalibus 1.3 mm longis oblanceolatis trigonis in angulis acutis scaberulis sed in fructu 2.3–2.4 mm longis 0.5 mm latis crassisque oblanceoloideis trigonis obscure badiis in marginibus et in apice ascendente scaberulis, 2 aristis 0.5–1 mm longis minute adscendente hispidulis, paleis receptaculi 4 mm longis 0.7 mm latis anguste obcuneatis plicatis apice obscuro lacerato, floribus disci fere 22 corollis luteis 2.8 mm longis, tubo 1 mm longo anguste tubuloso, limbo 0.5 mm longo infundibuliformi, 4 lobis 0.7 mm longis ovati-deltoideis obtusis, staminibus 4 cum filamentis 0.6 mm longis ligulatis, antheris 1 mm longis loculis subnigris sed projectionibus connectivorum pallidis, stylo 1.7 mm longo filiformi ex basi 0.3 mm longa cylindrica obscura, 2 stigmatibus 0.6 mm longis ligulatis acutis, 2 aristis pappi 0.5–0.7 mm longis subulatis minute puberulis, achaeneis disci juvenalibus 1.5 mm longis oblanceoloideis, sed

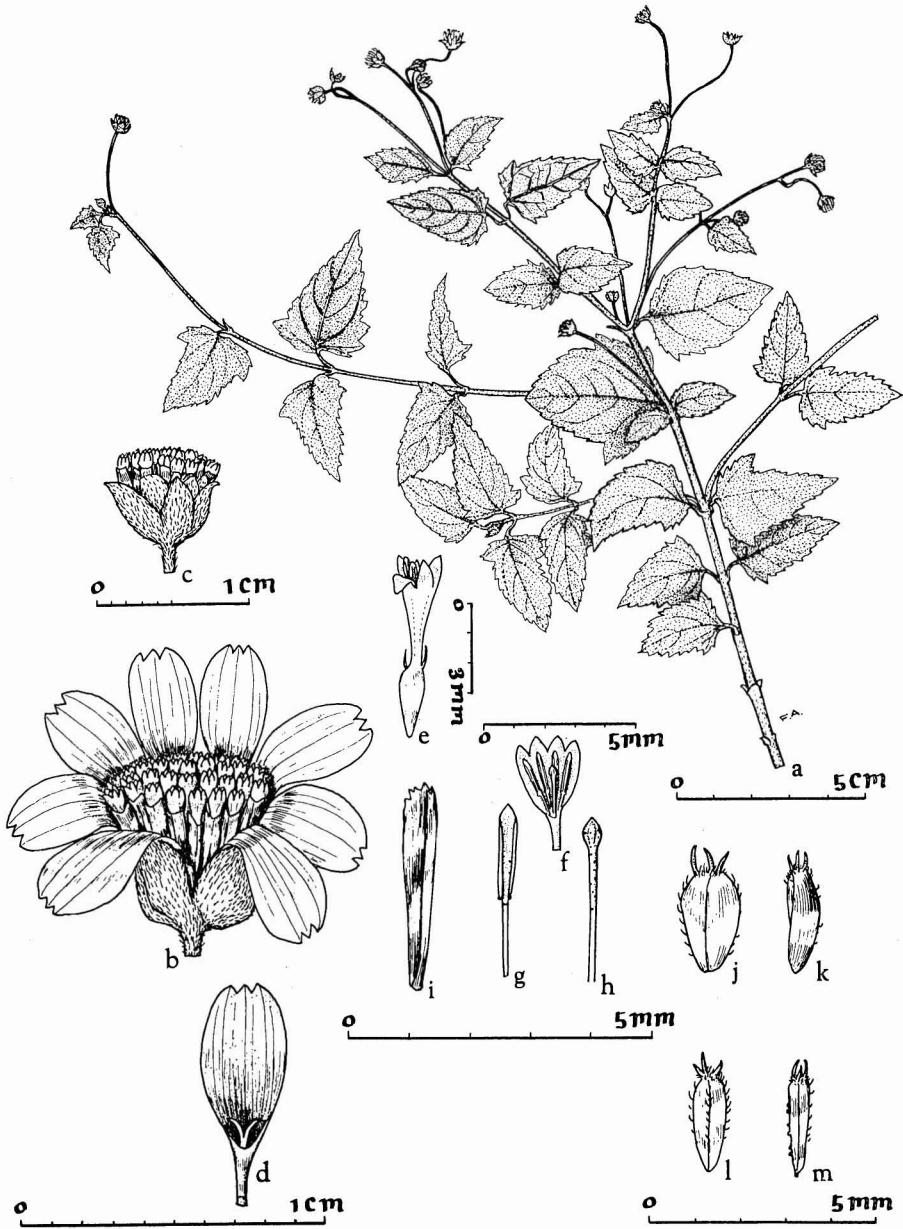


FIGURE 19. *Lipochaeta scabra* St. John, from holotype. *a*, habit, $\times \frac{1}{2}$; *b*, flower head, $\times 4$; *c*, involucre, $\times 2$; *d*, ray flower, $\times 4$; *e*, disk flower, $\times 4$; *f*, opened disk corolla, $\times 4$; *g*, stamen, $\times 8$; *h*, style and stigma, $\times 8$; *i*, chaff, $\times 8$; *j*, *k*, ray achene, $\times 6$; *l*, *m*, disk achene, $\times 6$.

in fructu 1.8–2.2 mm longis 0.5 mm latis crassisque anguste oblanceolatis trigonis obscure rubri-badiis elucidis angulis acutis et apice albi-hispidulis, 2 aristis 0.5–1 mm longis subulatis obscure badiis et adscendente albi-hispidulis.

DIAGNOSIS OF HOLOTYPE: Shrub, more than 23 cm tall, erect, widely branching; stems appressed whitish hispidulous, the branches axillary, opposite, but those of a pair unequal; the herbage appressed white hispidulous; the

nodes enlarged; internodes 1–4 cm long; petioles 3–6 mm long, narrowly winged; blades 2.2–3.7 cm long, 1.5–3.2 cm wide, firm chartaceous, ovate or deltoid ovate, acute, the wide base rounded or truncate, singly or doubly serrate (and a few of the larger ones slightly trilobed), above dark green and appressed hispidulous, below green and appressed hispidulous and with raised venation; secondary veins 4–5 in each half, curved ascending; heads 3–7 in cymes on slender peduncles, the lateral ones 2.5–3.5 cm long; heads radiate, at anthesis about 12 mm across, and 4–5 mm tall; phyllaries in 2 rows; exterior phyllaris 5 and 4 mm long, elliptic-ovate, firm, green, and appressed white hispidulous; inner phyllaries similar to the outer ones; ligulate florets about 8, yellow, the ray 6.5 mm long, 3 mm wide, oblong elliptic, the apex 3-toothed, with 2 strong longitudinal veins and 8 weaker ones; ray corolla tube 2 mm long; pappus awns 2, subulate, 0.3 mm long, ascending hispidulous; style 1.2 mm long; 2 stigmas 1 mm long, terete; the young ray achenes 1.3 mm long, oblanceolate, trigonous, scaberulous up the sharp angles; when mature the ray achenes 2.3–2.4 mm long, 0.5 mm wide and thick, oblanceoloid, trigonous, dark brown, ascending scaberulous on the margins and apex, the 2 awns 0.5–1 mm long, minutely ascending hispidulous; chaff 4 mm long, 0.7 mm wide, narrowly obcuneate, but folded, the dark apex lacerate; disk flowers about 22, the corolla yellow, 2.8 mm long; the tube 1 mm long, narrowly tubular, the limb 0.5 mm long, funnel-form, with 4 lobes 0.7 mm long, ovate deltoid, obtuse; the 4 stamens with filaments 0.6 mm long, ligulate; anthers 1 mm long, the narrow anther sacs blackish, the broadly ovate apical connective expansion pale; style 1.7 mm long, filiform, springing from a dark cylindrical style base 0.3 mm long; the 2 stigmas 0.6 mm long, ligulate, acute; pappus of 2 subulate awns 0.5–0.7 mm long, minutely puberulous; the young disk achenes 1.5 mm long, oblanceoloid; disk achenes when mature 1.8–2.2 mm long, 0.5 mm wide and thick, narrowly oblanceolate, trigonous, dull dark reddish brown, the sharp angles and summit white hispidulous; the 2 awns 0.5–1 mm long, subulate, dark brown and white ascending hispidulous.

HOLOTYPE: Sandwich Islands [Hawaiian Islands, Hawaii Island], *David Nelson* (BM).

DISCUSSION: *L. scabra* is a member of the section *Lipochaeta*, as is its closest relative, *L. subcordata* Gray, of western Hawaii, a species with the heads 5–6 mm tall; outer phyllaries 4; ligulate florets 5–6; limb of disk flowers 1.5 mm long; stems and petioles spreading puberulous; blades 3–9 cm long, cordate-ovate to deltoid. *L. scabra* has the heads 4–5 mm tall; outer phyllaries 5; ligulate florets about 8; limb of disk flowers 0.5 mm long; herbage appressed white hispidulous; blades 2.2–3.7 cm long, ovate or deltoid ovate, the base rounded or truncate.

The new epithet is the Latin adjective *scaber*, rough, and it describes the scabrous pubescence of the plant.

Lipochaeta trilobata sp. nov. (sect. *Lipochaeta*)

Figure 20

DIAGNOSIS HOLOTYPI: Frutex erectus ultra 30 cm altus cum ramis oppositis paucis est, caulibus et foliis adpresse adscendente albi-hispidulis, nodis paulo incrassatis, internodiis 1.3–4.5 cm longis pluriangulosis, petiolis 3–5 mm longis in nodo anguste perfoliatis, laminis 2.5–5.5 cm longis 1–3.5 cm latis subcoriaceis ovatis vel lancei-ovatis apice obtuso mucronulato basi rotundata ad late breve cuneata marginibus dupliserratis eis principalibus proxima basem breve trilobatis supra obscure viridibus et sparse adpresse hispidulis infra pallide viridibus et cum pilis simulantibus, nervis secundariis 4–5 in dimidio quoque curvatis adscendentibus, cymis cum (1–) 2–4 scapis 5–11 cm longis adpresse puberulentis adscendentibus omnibus cum capitula solitaria, capitulis radiatis in flore 1.8–2.2 cm diametro, phyllariis exterioribus 4–5 et 4.5–5 mm longis late ovatis subacutis firmis viridibus et adpresse adscendente albi-hispidulis, phyllariis in seriebus duobus omnibus subaequalibus, floribus radiatis fere 10 marginalibus et fertilibus, ligulis 7.5 mm longis 6 mm latis anguste ellipticis luteis apice bidentato 10-nervis, tubo corollae 2 mm longo, stylo 0.8 mm longo, 3 aristis pappi 0.8 mm longis, ovario 0.7 mm longo, achaenis radiatis 2.2 mm longis 1 mm diametro triangulosis cuneatis oblongis laevibus obscure badiis in angulis

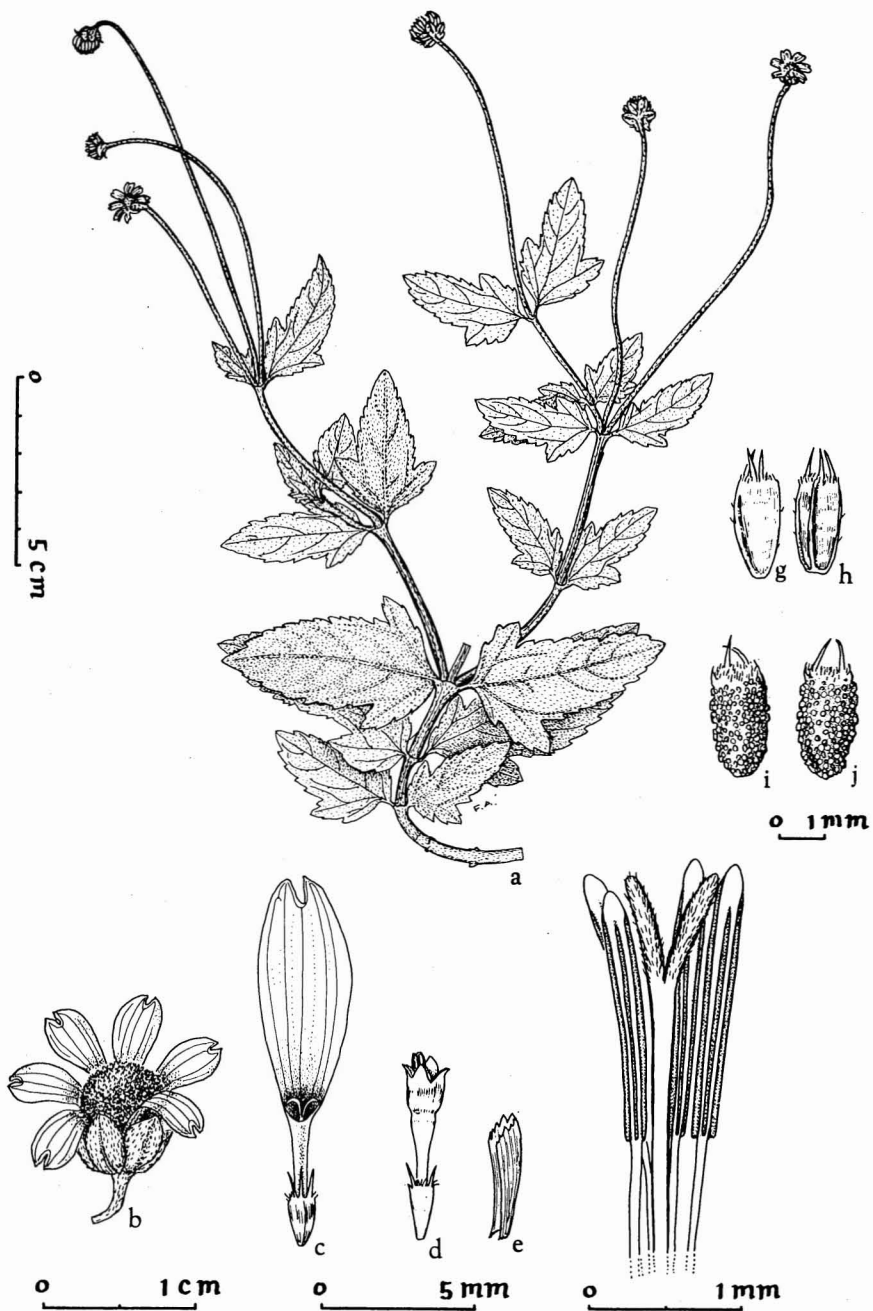


FIGURE 20. *Lipochaeta trilobata* St. John, from holotype. *a*, habit, $\times \frac{1}{2}$; *b*, flower head, $\times 2$; *c*, ray flower, $\times 4$; *d*, disk flower, $\times 4$; *e*, chaff, $\times 4$; *f*, stamens, style, and stigmas, $\times 20$; *g*, *h*, ray achene, $\times 6$; *i*, *j*, disk achene, $\times 6$.

remote glandulosis apice hispidulo, paleis disci 5 mm longis cuneatis acutis plicatis proxima apicem adscendente hispidulis, floribus disci multis 5.5–6 mm longis, ovario 1.5 mm longo, 2 aristis erectis pappi 0.5 mm longis, corollis 4–4.5 mm longis, tubo 3 mm longo, limbo 2 mm longo anguste campanulato, 4 lobis 0.5 mm longis late ovatis, 4 antheris 1.3 mm longis subnigris et cum projectione connectivi 0.2 mm longo lanceolato pallido, lobis stigmatis 0.9 mm longis oblanceolatis, achaeneis disci 2.3–2.4 mm longis 1.2–1.3 mm latis plano-convexis vel plano-quadrangulosis crebre verrucosis apice hispidulo et cum 2 aristis 0.5–0.6 mm longis scabris.

DIAGNOSIS OF HOLOTYPE: Erect shrub, more than 30 cm tall, with few opposite subequal branches; stems and herbage appressed ascending white hispidulous; the nodes slightly enlarged; internodes 1.3–4.5 cm long, several-angled; petioles 3–5 mm long, narrowly perfoliate at the node; blades 2.5–5.5 cm long, 1–3.5 cm wide, subcoriaceous, ovate to lance-ovate, the apex obtuse, mucronulate, the base rounded to widely short cuneate, the margins doubly serrate, the principal ones shortly trilobed near the base, above dark green and sparsely appressed hispidulous, below pale green and similarly hispidulous; secondary veins 4–5 in each half, curved ascending; cymes with (1–) 2–4 scapes 5–11 cm long, appressed puberulent, ascending, each with a single head; heads radiate, at anthesis 1.8–2.2 cm across; exterior phyllaries 4–5 and 4.5–5 mm long, broadly ovate, subacute, firm, green, and appressed ascending white hispidulous; phyllaries in 2 rows, the inner ones subequal to the outer ones; ray flowers about 10, marginal and fertile, the ray 7.5 mm long, 6 mm wide, narrowly elliptic, yellow, the apex bidentate, 10-nerved; the corolla tube 2 mm long; styles 0.8 mm long; pappus of 3 awns 0.8 mm long; ovary 0.7 mm long; ray achenes 2.2 mm long, 1 mm in diameter, trigonous, cuneate oblong, smooth, dull brown, the angles remotely capitate glandular, the upper rim hispidulous; chaff 5 mm long, cuneate, acute, folded, near the apex ascending hispidulous; disk flowers numerous, 5.5–6 mm long; ovary 1.5 mm long; pappus of 2 erect bristles 0.5 mm long; corolla 4–4.5 mm long; the tube 3 mm long; the limb 2 mm long, narrowly

campanulate, included, the 4 lobes 0.5 mm long, broadly ovate; 4 anthers 1.3 mm long, blackish, including the 0.2 mm pale lanceolate tip, stigma lobes 0.9 mm long, oblanceolate; disk achenes 2.3–2.4 mm long, 1.2–1.3 mm wide, plano-convex or plano-4-angled, densely verrucate, the apex hispidulous and with 2 scabrous awns 0.5–0.6 mm long.

HOLOTYPE: Sandwich Island [= Hawaiian Islands, Hawaii Island, mountain slope above Kealakekua, 1779, Captain Cook's third voyage], *Dav. Nelson* (BM).

DISCUSSION: *L. trilobata* is a member of the section *Lipochaeta*, as is its closest relative, *L. perdita* Sherff, also of Kona, Hawaii, collected only by D. Nelson, and now extinct, a species with the petioles 6–14 mm long, slender; blades 1.5–2 cm long, 1–2.2 cm wide, ovate deltoid, entire, the base subtruncate, below softly appressed hispid; scapes appressed hispid; fruiting heads 12–13 mm in diameter; ray achenes 2.5–2.9 mm long, 2.5 mm thick at the top. *L. trilobata* has the petioles 3–5 mm long; blades 2.5–5.5 cm long, 1–3.5 cm wide, ovate to lance-ovate, the principal ones shortly trilobed, the base rounded to widely short cuneate, or the base rounded and trilobed, below sparsely appressed hispidulous; scapes appressed puberulent; fruiting heads 8–9 mm in diameter; ray achenes 2.2 mm long, 1 mm in diameter.

The new epithet is the Latin word for three-lobed, and it refers to the shape of the leaves.

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