

LYSIMACHIA, LABORDIA, SCAEVOLA,
AND PLUCHEA

HAWAIIAN PLANT STUDIES—I

By

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INTRODUCTION

This is the first paper in a projected series of studies of Hawaiian vascular plants. The plan is to publish descriptions of new species or other new plants, to present brief revisions of plant groups, to record notable extensions of ranges, to list the collection of recent adventives, and to put on record ecological observations. These items will be assembled and issued as numbered parts under the general title, "Hawaiian plant studies."

FAMILY PRIMULACEAE

Lysimachia Forbesii Rock, Fedde Rep., vol. 13, p.361, June 30, 1914.

Lysimachia longisepala Forbes, B. P. Bishop Mus., Occ. Papers, vol. 4, no. 3, p. 46, 1909; not *L. longisepala* Forrest, Royal Bot. Gardens Edinburgh, Notes, vol. 19, p. 237, 1908.

Lysimachia koolauensis Forbes, B. P. Bishop Mus., Occ. Papers, vol. 6, no. 1, p. 39, 1914.

Mr. Forbes inadvertently chose for his new and very distinct species a name that was already preoccupied. As soon as this earlier homonym appeared in the next supplement of the "Index Kewensis," the duplication was discovered by both Mr. Forbes and Prof. Rock. Each renamed the Hawaiian plant, and their two specific names were both published during 1914. *Lysimachia Forbesii* Rock was published on June 30, 1914. *Lysimachia koolauensis* was not dated more exactly than "1914." It was appended to the "Director's report for 1913," which bears the statement, "Presented to the Trustees February 17, 1914; returned to the Director April 24, 1914, with orders to omit everything but 'work accomplished.'" Hence it is obvious that Forbes' publication must have been printed and issued somewhat later than April twenty-fourth. A search was recently made for the precise date of publication. Most of the principal libraries in Honolulu have several copies of this publication. These copies either lack any date of receipt stamp or have had their covers discarded before being bound. Inquiries sent to several of the leading libraries in the western United States revealed the same

conditions. However, Dr. W. L. Jepson has kindly informed me that the copy in the library of the University of California at Berkeley is stamped as received on July 27, 1914. One, or at most, two weeks could be allowed for the time the paper was in the mail between Honolulu and Berkeley. Definite evidence on the actual date of publication was finally obtained from the records of the Bishop Estate and from those of the Paradise of the Pacific, the printer. The pamphlet was printed on July 15, 1914. Thus, *Lysimachia Forbesii* Rock is the earlier, hence, the valid name for the plant.

FAMILY LOGANIACEAE

Labordia hypoleuca Degener, Flora Hawaiiensis, Family 302, August 10, 1932.

Shrub 2-3 meters tall; young branches green, fleshy, terete, granular puberulent or appressed pilosulous; youngest nodes gelatinous; branches stout, the bark becoming smooth and brown; innovations from the uppermost axils below the inflorescence; leaves opposite; stipules united into a sheath, 3-6 mm. long, remotely ciliate, membranous, pointed or emarginate midway between the petioles; the leaf axils with many subulate glands 0.6-0.8 mm. long, white, but blackening on drying; petioles green, 1-5 cm. long, 3-8 mm. in diameter appressed pilosulous; blades 7-26 cm. long, 2-14.5 cm. wide, broadly elliptic to ovate-elliptic, cuneate at base, short acuminate at tip, nearly glabrous and dark glossy green above, below whitish, and appressed pilosulous, principal lateral veins 7-13 on a side, curved towards apex; inflorescence a terminal 2-forked, 8-82-flowered cyme, the branches recurved, 1-4 cm. long; branches of the inflorescence and pedicels appressed whitish pilosulous; bracts 3-6 mm. long, linear, white pilosulous; flowers sessile or on pedicels 1-17 mm. long, thickened towards the tip; sepals 5-6, 6-11 mm. long, pale green, lanceolate, acuminate, unequal, pilosulous, the tips somewhat convolute; corolla in bud convolute, the lobes closed to the apex; corolla pale greenish yellow, shading to whitish at base, 26-37 mm. long, glabrous or slightly pilosulous without, within the tube and the base of the lobes sparsely pilosulous, the tube cylindrical, 3-5 mm. in diameter, 15-23 mm. long, the five lobes 8-13 mm. long, reflexed, linear-lanceolate; anthers 3-4 mm. long, lanceolate, pale yellow, attached from their median points to the base of the sinus of the corolla lobes, the tip of the anthers with a stout ovate apiculation, the base cleft one-quarter of the length; pistil about 2 cm. long; ovary subulate, gradually tapering above, with a hispid band just above the middle; style glabrous, about 4 mm. long; stigma 7 mm. long, clavate, 2 mm. in diameter, green, and white hispidulous especially towards the tip, and towards the tip often with a faint crease; cells of the ovary 2; ovules numerous; capsules 18-50 mm. long, 8-12 mm. in diameter, spindle-shaped, terete or nearly so, the acute beak flattened perpendicular to the septum and extending 5 mm. or more beyond the tip of the locules, the dehiscence loculicidal from the tip or from both the tip and the base; seeds embedded in a yellowish pulp; seeds 2.5-3.5 mm. long, asymmetrically ovoid,

white or pale brown, the testa with a conspicuous, light, cellular network, the hilum linear, nearly as long as the flattened side of the seed.

Originally described by Mr. Degener from a single collection made at Punaluu-Kaluanui in June, 1932. This collection contains good flowers and foliage, but only immature fruit. His description does not include the range of variation of most of the parts, nor is there any statement of the differences between the new *L. hypoleuca* and related species.

Abundant material of this species exists, and it was used in the preparation of the description here presented. This, under a manuscript specific name, was submitted for and awaiting publication previous to the publication of *L. hypoleuca*. The first collection, made in 1908 by C. N. Forbes, is available in Bernice P. Bishop Museum. Others, assembled by me and by my students, had not been mounted and made available. On the basis of this material it has seemed desirable, even now, to publish the foregoing amplified description, to list additional collections and localities, and to contrast the species with its nearest relative.

Hawaiian islands: Oahu, shrub, 8 feet tall, wet wooded slope, 1600 feet altitude, Waikakalaua Gulch, Koolau mountains, April 6, 1930, Harold St. John no. 10464, in flower; same locality, in fruit, September 14, 1930, H. St. John and E. Y. Hosaka no. 10567; Koolau mountains between Punaluu and Kaipaupau, November 14-21, 1908, C. N. Forbes; shrub, 10 feet tall, in small wet valley, near trail, 1800 feet altitude, Kaluanui-Punaluu Divide, Kaluanui, Koolau mountains, May 8, 1932, E. P. Hume no. 558.

Dr. Hillebrand¹ divided the species of *Labordia*, an endemic Hawaiian genus, into two sections, *Labordeae verae* and *Geniostomoideae*. His description of each is lengthy, but lacking in tangible, contrasting characters. The new species here discussed agrees with the *Labordeae verae*, except that the convolute petal lobes are appressed in the bud and the flowers are pale greenish yellow. H. Sollereder² followed Hillebrand's division of the species into the two groups, but did not use the sectional names. I consider that the characters of *Labordia hypoleuca* invalidate the two sections and that they had better be abandoned.

¹ Hillebrand, William, *Flora of the Hawaiian islands*, pp. 288-289, Heidelberg, 1888.

² Engler, A. und Prantl, K., *Die natürlichen Pflanzenfamilien*, ed. 1, Teil 4, Abt. 2, p. 32, Leipzig, 1895.

Labordia hypoleuca Degener is distinguished by having the young stems, foliage, and inflorescence appressed white pilosulous; the corolla tube 15-23 mm. long, glabrous or slightly pilosulous without, pilosulous within; and the capsules 8-12 mm. broad, spindle-shaped, terete or nearly so. It grows on both slopes of the Koolau Range, at Waikakalaua Gulch on the lee slope of the central part of the Koolau Range, and at Punaluu, further west and on the windward slope. The most similar species is *L. membranacea* Mann. This differs by having the young stems, foliage, and inflorescence dark rufous hispidulous; the corolla tube 10-14 mm. long, glabrous; and the capsules 15-18 mm. broad, oval, strongly flattened parallel to the backs of the two valves. This older species grows on the lee slopes of the Koolau mountains from Nuuanu Valley eastward.

The generic name is intentionally spelled *Labordia*, with an *i* instead of an *e*. This follows the original spelling, and is in accord with the usage of Bentham and Hooker, of Engler and Prantl, and of Rock.

FAMILY GOODENIACEAE

Scaevola Skottsbergii, new species (pl. 1; fig. 1).

Shrub, 2-3 meters tall, with numerous ascending branches; stems pale brown, glabrate; branchlets green, ascending or appressed short pilosulous, leafy for 1-2 dm.; leaves alternate; petioles 1-2.5 cm. long, more or less winged nearly to the base, ascending pilosulous; blades 3-8 cm. long, 15-34 mm. wide, firm membranaceous, elliptic, slightly asymmetric and curved, upper side clear green, thinly appressed pilosulous but in age almost glabrate, lower surface somewhat paler green, densely and permanently appressed pilosulous, midrib strong, straight in the lower half, often staggered in the upper half, principal lateral veins usually 5-7 on a side, arched-ascending, the margin entire in the lower third, in the upper two-thirds with 6-12, usually 8-9, prominent, irregular, apiculate serrations, base of the leaf cuneate, decurrent, the tip subacute, apiculate; flowers much shorter than the leaves, numerous, often each leaf axil producing a 1-flowered pedicel; pedicels slender, 5-27 mm. long, ascending pilosulous, 1-flowered (a single example that was 2-flowered on one pedicel was noted); bracts beneath the ovary 2, linear, pilosulous, often unequal, 5-18 mm. long, usually deciduous from the ripe fruit; ovary 3-4 mm. long, cylindrical, green, glabrous; calyx a short collar, irregularly shallowly lobed, pilose ciliate; corolla pilosulous above the middle, whitish, the nerves dull lavender; corolla-tube 15-17 mm. long; corolla-lobes 11-14 mm. long, with delicate, membranous wings that are easily ruptured; style 26 mm. long, pilose, scarcely so for a short distance below the densely pilose swollen tip; stamens 12-14 mm. long, anthers 4 mm. long; berry ellipsoid to ovoid, purplish black, glabrous, polished and shining, 10 mm. long, 7-8 mm. in diameter; calyx-lobes pilose ciliate,

hypanthium pale, yellowish, granular, pilose near the style-scar; stone ovoid, scarcely compressed, brownish, nearly smooth, or sparsely rugose, 5-5.5 mm. long, 2.8-3.2 mm. wide, 2-celled, 2-seeded.

Frutex 2-3 m. altus ramosus, caulibus pilosiusculis viridibus deinde brunneis glabratisque, foliis alternis, petiolis 1-2.5 cm. longis alatis pilosiusculis, laminis 3-8 cm. longis, 15-34 mm. latis membranaceis ellipticis leviter inaequalibus curvatisque, paginis superioribus viridibus sparse adpressi-pilosiusculis deinde glabratis, paginis inferioribus pallidi-viridibus crebiter adpressi-pilosiusculis, costis validibus ad basim rectis ad apicem fluctuatis, nervis 5-7 utrinque arcuatis, marginibus integris in tertia parte ad apicem 6-12-plerumque 8-9-apiculati-serratis, ad basim cuneatis decurrentibus, apice subacuto apiculato, floribus singulis in axilibus quam folias valde brevioribus, pedicelis gracilibus 5-27 mm. longis pilosiusculis unifloriferis, bracteis 2 linearibus pilosiusculis 5-18 mm. longis saepe inaequalibus vulgariter deciduis, ovariis 3-4 mm. longis cylindricis viridibus glabris, calycibus brevibus breviter lobatis pilosi-ciliatis, corollis albescentibus pilosiusculis supra mediam nervis violaceis, tubo 15-17 mm. longo, lobis 11-14 mm. longis molliter alatis, stylis pilosis 26 mm. longis, staminibus 12-14 mm. longis, antheris 4 mm. longis, drupis ellipsoideis vel ovatis purpureo-atris glabris lucidis 10 mm. longis 7-8 mm. latis, hypanthiis pallidis luteis granularibus in centro pilosis, endocarpiis ovoideis brunneis 5-5.5 mm. longis 2.8-3.2 mm. latis, loculis 2 uterque 1-semeniferis.

Hawaiian islands: Oahu, 6-foot shrub in thicket on steep slope, Kipapa Gulch, 800 feet altitude, Waipio, February 21, 1932, Harold St. John no. 11562 (type in B. P. Bishop Museum).

I am somewhat in doubt as to to which section of the genus this new species should be referred. The recent systematic treatments of the genus follow closely the division into sections proposed by G. Don. The characterizations of several of them are so nearly identical and so lacking in any tangible differentiating characters, that I cannot escape the feeling that they are either very poorly characterized or else very artificial.

As customarily defined, as in, for instance, the monograph by Krause,³ *S. Skottsbergii* must certainly be assigned to the section *Crossotoma*, even though its branches do not become thorns. In this section the most similar species is *S. tomentosa* Gaudichaud of West Australia. This species has stems as much as 8 dm. in height; a coat of more or less dense stellate pubescence; the leaves obovate or obovate-oblong, rarely subobovate, the apex obtuse, and with the petiole up to 4 cm. in length and 0.8-1.4 cm. in width; the peduncles with two large leafy ovate or ovate-oblong bracts fused on one side up to the middle; the corolla reddish brown without and densely tomentose, within orange, 1.8-2.3 cm. long and gibbous at base.

³ Krause, K., Goodeniaceae: Pflanzenreich, vol. 4, fam. 277, pp. 118-119, 1912.

On the contrary, *S. Skottsbergii* St. John has stems from 20-30 dm. in height; a surface more or less pilosulous throughout; the leaves elliptic, slightly asymmetric and curved, the apex subacutate, apiculate, and the blade with the petiole up to 9.5 cm. in length and 1.5-3.4 cm. in width; the peduncles with two linear distinct bracts; and the

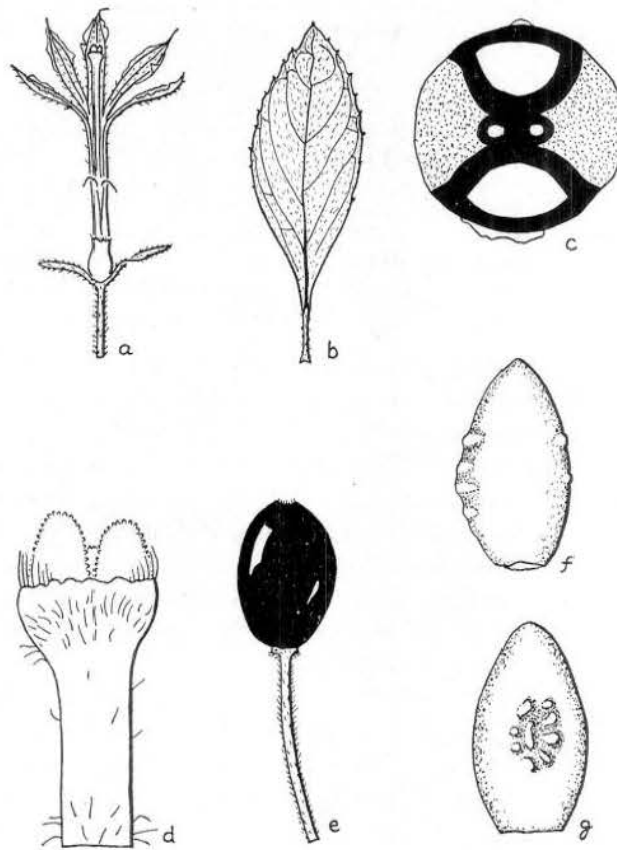


FIGURE 1. *Scaevola Skottsbergii*, new species: *a*, flower, bracts, and pedicel, $\times 1$; *b*, leaf, $\times 1/2$; *c*, cross section of stone showing in black the stony endocarp surrounding the two large fertile locules and the two small sterile lacunae, in the dotted area the spongy mesocarp, in outline the two dorsal rugose projections, $\times 10$; *d*, tip of style and stigmatic lobes, $\times 10$; *e*, drupe and pedicel, $\times 2$; *f*, stone, lateral view, $\times 5$; *g*, stone, dorsal view, $\times 5$.

corolla whitish with dull lavender veins, pilosulous above the middle, not gibbous.

Though none of the Hawaiian species of *Scaevola* seem to be very close relatives, it is nevertheless desirable to single out the one that is closest and to give the contrasting characters that separate it from the species here described. *Scaevola cerasifolia* Skottsberg,⁴ which is apparently in the section *Sarcocarpaea* like the remaining Hawaiian species, has the leaves acuminate, the blades 7.5-10 cm. long, the margin glandular denticulate with 10-16, usually 12-13, minute teeth; the flowers in axillary 5-9-flowered cymes; the ovary sparsely pilose; the anthers 1.5-2 mm. long; the drupe 8 mm. long, 4 mm. in diameter; the stone laterally compressed, and the stony inner endocarp oval in cross section and completely surrounded by the mesocarp. On the other hand, *S. Skottsbergii* St. John has the leaves subacute apiculate, the blades 3-8 cm. long, the margin with 6-12, usually 8-9, prominent, irregular, apiculate serrations; the pedunculate flowers single in the axils; the ovary glabrous; the anthers 4 mm. long; the drupe 10 mm. long, 7-8 mm. in diameter; the stone scarcely compressed and the stony inner endocarp in cross section seen as two large flattened ellipses, both touching the margin and surrounding the locules, separated by a smaller ellipse around the small rounded sterile lacunae.

Dr. Carl Johan Fredrik Skottsberg, Director of the Göteborg Botanical Garden, is an active student of and an authority on the Hawaiian flora. He has published critical revisions of numerous difficult groups, including the most recent one of our species of *Scaevola*. The new species here named is respectfully dedicated to him.

FAMILY COMPOSITAE

Pluchea odorata (Linnaeus) Cassini.

Oahu: on recent coral fill, Honolulu, October 23, 1931, Carla H. Mirikitani no. 1. A subshrubby weed introduced from Central America or the West Indies. Its occurrence in the Hawaiian islands seems not to have been previously reported.

⁴ Skottsberg, C., *Artemisia, Scaevola, Santalum, and Vaccinium of Hawaii*: B. P. Bishop Mus., Bull. 43, pp. 36-37, figs. 12, 14, c, e, 1927.



PLATE 1. *Scaevola Skottsbergii*, new species. Type.