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# Miscellaneous Notes on Hawaiian Plants—3[1]

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This paper presents remarks on the taxonomy, nomenclature, and distribution of Hawaiian species in 23 genera, and directs attention to changes in names applied to Hawaiian plants in revisions or monographs that might not be known to all Hawaiian botany students. These genera are *Ophioglossum, Thelypteris, Andropogon, Cyperus, Dracaena, Ficus, Santalum, Chenopodium, Argemone, Bocconia, Leucaena, Bruguiera, Psidium, Pouteria, Polypremum, Ipomoea, Nama, Vitex, Ocimum, Perilla, Asarina, Psychotria,* and *Sambucus.* New combinations are proposed in *Ophioglossum, Thelypteris, Dracaena, Santalum, Psidium, Pouteria,* and *Psychotria;* and a new variety is described in *Chenopodium.* Symbols indicating the places where the herbarium specimens cited are deposited are those accepted by the I.A.P.T. Index Herbariorum, except that BISHOP is used for B. P. Bishop Museum and Fo is used for my undistributed material.

## OPHIOGLOSSUM

**Ophioglossum pendulum** var. **falcatum** (Presl) Fosberg, stat. nov.

*Ophioderma pendulum β falcatum* Presl, Suppl. Tent. Pterid., 55, 1845.

*Ophioderma falcatum* Degener, Fl. Hawaiiensis, family 1, Sept. 10, 1932.

*Ophioglossum pendulum* ssp. *falcatum* (Presl) Clausen, Torrey Bot. Club, Mem. **19** (2): 117, 1938.

*Ophioglossum falcatum* (Presl) Fowler, Am. Fern Jour. **30**: 10, 1940.

[1] Numbers 1 and 2 of this series were published as B. P. Bishop Mus. Occ. Papers **12** (15): 1-11, 1936 and **16** (15): 337-347, 1942.

This seems to be a variety, rather than a subspecies, in the sense used by botanists who distinguish these two categories (Fosberg, Rhodora **44**: 153-157, 1942; Weatherby, Rhodora **44**: 157-167, 1942).

## THELYPTERIS

Although it seems clear, from the work of Manton and Holttum, that the thelypteroid and dryopteroid lines in the aggregate genus *Dryopteris* Adanson should be separated, I am not prepared to recognize the narrow segregate genera in these lines proposed by many modern pteridologists. Consequently, the species now referred by many workers to *Cyclosorus* Link fall into *Thelypteris* Schmidel, the oldest generic name applied to the group and typified by *T. palustris* Schott (*Acrostichum thelypteris* L.). I do not regard Schmidel's publication of the name *Thelypteris* as invalid, as does Copeland (Gen. Fil., 136, 1947) but prefer to follow Alston (Kew Bull. **1932**: 309, 1932), who considered that Schmidel intended to, and did, validly publish genera, including this one. Several species in this group to which I currently need to refer have apparently never been transferred to *Thelypteris*. The combinations for these are proposed below.

**Thelypteris parasitica** (L.) Fosberg, comb. nov.
*Polypodium parasiticum* L., Sp. Pl. **2**: 1090, 1753.
*Dryopteris parasitica* (L.) Kuntze, Rev. Gen. Pl. **2**: 811, 1891.

**Thelypteris cyatheoides** (Kaulfuss) Fosberg, comb. nov.
*Aspidium cyatheoides* Kaulfuss, Enum. Fil., 234, 1824.
*Dryopteris cyatheoides* (Kaulfuss) Kuntze, Rev. Gen. Pl. **2**: 812, 1891.

**Thelypteris stegnogrammoides** (Baker) Fosberg, comb. nov.
*Polypodium stegnogrammoides* Baker, Syn. Fil., 317, 1867.
*Dryopteris stegnogrammoides* (Baker) C. Christensen, Ind. Fil., 294, 1905.

**Thelypteris sandwicensis** (Hooker and Arnott) Fosberg, comb. nov.
*Polypodium sandwicense* Hooker and Arnott, Bot. Beechey Voy., 105, 1832.
*Dryopteris sandwicense* (Hooker and Arnott), C. Christensen, Ind. Fil., 290, 1905.

ANDROPOGON

**Andropogon glomeratus** (Walter) Britton, Sterns, and Poggenberg.

This species, which is native from the eastern United States to tropical America, is rather commonly naturalized around Kilauea to at least Hilina Pali, where it is abundant, *Fosberg 42065* (Fo). The late E. Y. Hosaka also noted it on Hawaii. It may be readily distinguished from the other common species in the region, *A. virginicus*, by its compact, brushy inflorescence.

CYPERUS

**Cyperus compressus** L.

Hawaii: Halape, sea level, Feb. 16, 1943, *Fagerlund and Mitchell 343* (BISHOP); Waiohinu, Nov. 1935, *Meebold 20949* (BISHOP, sterile, but so determined by Hugh O'Neill); Honaunau, 1 meter, Sept. 8, 1961, *Fosberg 42066* (Fo).

Judging by the few Hawaiian specimens in the Bishop Museum Herbarium and by the fact that the U. S. National Herbarium has no Hawaiian material, this weed is a rare species in the Hawaiian Islands.

**Cyperus haspan** L.

Hawaii: abundant in excavated area in dense wet *Metrosideros* forest, 850 meters, on old lava along road to Kulani Prison Camp, 8 miles below camp, March 18, 1961, *Fosberg 41551a* (US, Fo).

Apparently this widespread tropical species has not been reported previously from the Hawaiian Islands. It can be recognized by its decompound umbels, its chestnut-colored, trinerved glumes with green keels, and its trigonous obovoid whitish nuts.

DRACAENA

The partially united perianth scarcely seems an adequate reason for maintaining the segregate genus *Pleomele* Salisbury as distinct from *Dracaena* Vandelli, as is done by Degener and St. John. However, the short-flowered trees found in the eastern islands, and separated by both these authors, seem specifically distinct from *D. aurea* Mann. Which of the three available names to transfer to *Dracaena* is not easily determined.

**Dracaena hawaiiensis** (Degener) Fosberg, comb. nov.

*Pleomele hawaiiensis* Degener, Fl. Hawaiiensis, family 68 (*P. aurea*), Aug. 10, 1932.

*Pleomele lanaiensis* Degener, Fl. Hawaiiensis, family 68 (*P. aurea*), Aug. 10, 1932 (*P. fernaldii*), May 28, 1956.

*Pleomele fernaldii* St. John, Contrib. Gray Herb. **65**: 39-42, 1947.

The questions raised by inadequately described species are indeed difficult to resolve. St. John rejects the two names proposed by Degener for short-flowered species segregated from the Hawaiian *Dracaena aurea* Mann. Degener characterized these in only the briefest of terms, intending to publish an adequate description and illustration later. St. John's course would be an easy way to solve many difficulties arising from the inadequacies of early work, as judged by modern standards, or from contemporary carelessness. If we could all agree on what constitutes adequate work, a provision for the rejection of names not based on such work could be introduced into the International Code of Botanical Nomenclature. However, there is no such provision there now and there is not likely to be one. If such a provision were introduced into the Code and rigidly applied, the mortality of well-established names would no doubt be appalling.

Degener, whose *Pleomele* names are cited above, certainly gives sufficient descriptive information to distinguish the species from *Dracaena aurea;* but since I believe that both names apply to the same species, they can scarcely be expected to be distinguishable from each other. If we apply the Code at all strictly, there seems to have been no good reason for proposing *Pleomele fernaldii*, and there seems to be no reason whatever for continuing to use it. Since *Pleomele* is probably no more than a section of *Dracaena*, I am transferring *Pleomele hawaiiensis* to *Dracaena* to provide a name for the short-flowered species, selecting it rather than *P. lanaiensis*. An excellent description is provided by St. John under *P. fernaldii*, and Degener's plates illustrate well how it differs from *D. aurea*.

## FICUS

**Ficus microcarpa** L. f., Suppl. Pl., 442, 1781.

In the course of his monographic revision of the Indo-Malaysian species of *Ficus*, Corner (Gard. Bull. **18**: 1-69, 368-485, 1960) shows that various well-established names have been misapplied, among them

*F. retusa* L., commonly used in Hawaii for the Chinese banyan, which now must be called *F. microcarpa* L. f.

## SANTALUM

**Santalum ellipticum** Gaudichaud, Bot. Voy. Uranie, 442, 1826.

In an inclusive sense, this is a clear and easily recognized species, with its closest relatives in the south Pacific. Skottsberg defines it well in the characterization of his "*ellipticum* group" in his revision of the Hawaiian species of *Santalum* (B. P. Bishop Mus., Bull. **43**: 41-42, 1927). Not that the species is uniform; rather, it is extraordinarily polymorphic. Rock and Skottsberg's attempts to define species within the group and Gray, Hillebrand, and Degener's attempts to recognize varieties within it attest to its variability. Egler [B. P. Bishop Mus., Occ. Papers **14** (21): 349-357, 1939], dealing with only part of the complex, lists 10 synonyms. In all, 14 epithets have been applied, in various ranks, to plants belonging in this species in the inclusive sense adopted here. All are based on individuals that differ in some manner. The fact that four authors of this century—Rock, Skottsberg, Degener, and Egler—all familiar with these plants in the field, have differed in almost every respect in their treatments of this complex shows that we are dealing with an extremely refractory group. It may also indicate that to propose a fifth arrangement is a bit rash.

I shall not attempt here a detailed review of the complex, but merely state what considerable field observation suggests may be a satisfactory tentative arrangement that will provide valid names for the principal subdivisions of *Santalum ellipticum* until an intensive population analysis can be made. However, an analysis must be made very soon, if at all, as the habitats of this species are disappearing rapidly.

The diversity of habitat occupied by these plants has been hinted at by Egler (loc. cit.), who finds a correlation between habitat variations and some of the taxa that have been recognized. He finds perfect gradients in the characters previously used to separate species, reduces everything to one species, and ascribes the variations to environmental influences. Plants belonging to this group may, even now, be found in rainy bogs, moist forests, dry scrub, lava and ash deserts, and spray-swept coastal rocks and sand dunes; and formerly they were found even on the coral atoll of Laysan. It is not likely that a genetically uniform species could successfully inhabit such a range of conditions.

Species ordinarily respond to such situations by differentiating into genetically different varieties, or ecotypes; and the nature of the differences within *ellipticum* indicates this to be true here. It would be interesting to make cultivation experiments to settle this question; but because of the semi-parasitism of *Santalum*, such a project would probably present difficulties. Hillebrand (Flora of the Hawaiian Islands, p. 389, 1888) was unable to cultivate Hawaiian sandalwoods in his garden.

The following key separates what seem to be the principal varieties, within which several forms can be separated on the basis of pubescence. But this should be done after examination of all the available material and, preferably, after the population analysis I have suggested. No attempt is made to dispose of all the epithets proposed, or to list more synonyms than are necessary to establish tenable varietal names. References to all synonyms are found in the papers cited, the most comprehensive of which is that by Skottsberg (1927), who again discussed the group in 1944 (Medded. Göteborgs Bot. Trädgaard **14**: 360-362).

1. Leaves glossy above.....var. **luteum**
1. Leaves dull on both sides.
   2. Surfaces of leaves dissimilar.....var. **latifolium**
   2. Surfaces of leaves similar.
      3. Leaves thin.....var. **ellipticum**
      3. Leaves subfleshy.....var. **littorale**

**Santalum ellipticum** Gaudichaud var. **ellipticum.**

This variety includes the plants that have been separated as *S. cuneatum* (Hillebrand) Skottsberg. It may now be reported from Kauai, where a dwarf form of it is occasional in the Wahiawa Bog, east of the Hanapepe River, at 600 meters, *Fosberg 41473* (Fo). Forms that apparently belong to this variety are now known from all the major Hawaiian Islands except, possibly, Hawaii.

**Santalum ellipticum** var. **littorale** (Hillebrand) Skottsberg, B. P. Bishop Mus., Bull. **43**: 55, 1927 (as *litorale*).

*Santalum freycinetianum* var. *littorale* Hillebrand, Fl. Hawaiian Islands, 390, 1888.

*Santalum cuneatum* var. *laysanicum* Rock, Hawaii Board Agric. For., Bot. Bull. **3**: 39, 1916.

Known from near seashores, at least on Oahu and, formerly, on Laysan.

**Santalum ellipticum** var. **latifolium** (Gray) Fosberg, comb. nov.

*Santalum freycinetianum* var. *latifolium* Gray, Am. Acad. Arts Sci., Proc. **5**: 327, 1867.

This variety, confined to the island of Hawaii and common around Kilauea Volcano, is generally considered a distinct species under the name *S. paniculatum* Hooker and Arnott.

**Santalum ellipticum** var. **luteum** (Rock) Degener, Fl. Hawaiiensis, family 100 (*S. ellipticum*), Oct. 4, 1937.

*Santalum pilgeri* var. *luteum* Rock, Hawaii Board Agric. For., Bot. Bull. **3**: 31, 1916.

This variety is confined to the island of Hawaii, especially the dry slopes of Mount Hualalai volcano, where it is usually considered a distinct species under the name *S. pilgeri* Rock. The earliest epithet in varietal rank is *luteum*. It is extremely variable.

## CHENOPODIUM

**Chenopodium oahuense** (Meyen) Aellen var. **discosperma** Fosberg, var. nov.

Subherbacea, semina disciformis 1-1.5 mm. lata.

Differs from var. *oahuense* (which is distinctly shrubby) in the coarse, subherbaceous habit, somewhat stiff panicle, and much larger disk-shaped seeds, 1-1.5 (mostly 1.3-1.4) mm. wide, slightly depressed on upper side, black, pitted, with pits arranged somewhat radially on hilum side. Although inflorescence is distinctly glandular, plant does not have a strong odor.

Maui: Haleakala Crater floor near Bubble Cave, on lava slope under trees, 2,250 meters, August 22, 1933, *Fosberg 9934* (US, type; BISHOP; Fo).

## ARGEMONE

**Argemone glauca** var. **inermis** Degener and Degener.

This variety, previously known from a single collection from the island of Kahoolawe, was regarded by Ownbey (Brittonia **13**: 108, 1961) as a local endemic population isolated for a long time on a single island, where it underwent genetic drift and divergent evolution. However, several plants that are clearly of this variety were found growing on lava in an open sclerophyll forest at Kaupulehu, North Kona, Hawaii, *Fosberg 41740, 42170* (Fo), and another near Kamehameha Highway opposite Puuwaawaa, North Kona, *Fosberg 42168* (Fo).

It is still a rare local endemic, but neither it nor var. *decipiens*, also found on the island of Hawaii, can still be regarded as isolated on separate islands. Ownbey cites var. *decipiens* from widely separated localities, including the slopes of Hualalai, not far from the colonies of var. *inermis*. The two varieties are easily distinguished by the extreme prickliness of var. *decipiens* and the smooth surfaces of var. *inermis*.

## BOCCONIA

**Bocconia frutescens** L.

This grotesque Andean shrub is well established around Ulupalakua Ranch at the southwest corner of east Maui, where it must have been growing for at least 35 years, to judge by the following material.

Maui: Ulupalakua Ranch, 580 meters, March 25, 1925, *Lyon s.n.* (BISHOP); same locality, May 28, 1952, *Henke* (BISHOP, three sheets); same locality, September 3, 1961, *Fosberg 42038* (Fo). The leaves in this population range from the normal, deeply incised ones to almost entire and are densely lanate beneath.

## LEUCAENA

**Leucaena leucocephala** (Lamarck) de Wit, Taxon **10**: 54, 1961.

De Wit has effectively demonstrated that the name *Leucaena glauca* (L.) Bentham—long applied to the widespread koa haole (Hawaii), *tangan tangan* (Guam), or *ifil ifil* (Philippines)—really belongs to the West Indian shrub long called *Acacia villosa* (Swartz) Willdenow and cannot be used for the plant introduced in Hawaii. It must be known henceforth as *Leucaena leucocephala*. This shrub, which in the 1930's was abundant in many lowland areas in the Hawaiian Islands, is now even more plentiful; and in fairly dry areas it has crowded out *Lantana camara*. But *L. leucocephala*, itself, seems now to be yielding in many places to *Schinus terebinthifolius*.

## BRUGUIERA

**Bruguiera gymnorhiza** (L.) Lamarck, Encycl. méth., Bot. **4**: 696, 1797 or 1798.

*Rhizophora gymnorhiza* L., Sp. Pl., 443, 1753.

Ding Hou (Flora Malesiana I, **5**: 452, 461-463, 1958) shows that the name *Bruguiera conjugata* (L.) Merrill has probably been incorrectly applied to the common red-flowered mangrove and that the cor-

rect name is *B. gymnorhiza*. His contention that the original spelling, with one r, should be corrected to *gymnorrhiza* is a little more difficult to accept; but with the current wording of the provision in the International Code for correcting orthographic errors, almost any interpretation could be upheld.

This introduced species is found on the landward side of Heeia Bridge, Oahu (Fosberg, Univ. Hawaii, Occ. Papers **46**: 8, 1948).

## PSIDIUM

**Psidium cattleianum** Sabine.

Twenty years ago (Biol. Soc. Washington, Proc. **54**: 179-180, 1941) I accepted the name *Psidium littorale* Raddi for the common strawberry guava, following Merrill and Perry (Jour. Arnold Arboretum **19**: 199, 1938); but C. A. Schroeder (Jour. Arnold Arboretum **27**: 314-315, 1946) is probably correct in giving Sabine's name priority. As I pointed out in 1941, Raddi had the yellow-fruited plant that is used in reforestation in the Hawaiian Islands, commonly called *waiawi*. I thought, at that time, that Degener's forma *lucidum* was this plant; but Degener has since told me that what he had was not the tree with the translucent, elongate fruit but a pale-yellow-fruited form of the common red-fruited strawberry guava. Since then I have seen Degener's plant, a shrub with globose opaque, pale greenish-yellow fruits, found in several localities on the island of Hawaii and have collected it near the Stainback Highway to Kulani at its intersection with the Old Flume Road, *Fosberg 42046* (Fo). This necessitates the following rearrangement of the infra-specific nomenclature in this species.

**Psidium cattleianum** Sabine var. **cattleianum** f. **cattleianum.**

*Psidium cattleianum* Sabine, Trans. Roy. Hort. Soc. **4**: 315-317, 1821.

**Psidium cattleianum** var. **cattleianum** f. **lucidum** Degener, Fl. Hawaiiensis, family 273 (*P. cattleianum*), Mar. 3, 1939.

*Psidium littorale* var. *lucidum* (Degener) Fosberg, Biol. Soc. Washington, Proc. **54**: 180, 1941.

**Psidium cattleianum** var. **littorale** (Raddi) Fosberg, comb. nov.

*Psidium littorale* Raddi, Opusc. **4**: 254, 1823.

There is some question whether *P. littorale* should be reduced to a variety of the strawberry guava, as it has a more upright habit, translucent, somewhat elongate fruit, and fewer and larger seeds. Actually, these differences are so slight that the plants are scarcely distinguishable without fully mature fruits; so I continue to regard the red- and yellow-fruited plants as varieties of one species. Apart from my varietal names (1941), only Berg [in Martius, Flora Brasiliensis **14** (1): 400-401, 1857] has given varietal names to members of this complex. Among Berg's varieties only var. *longipes* is identifiable; and since it is the equivalent of var. *cattleianum*, we may continue to use the epithet *littorale* for the yellow-fruited variety.

## POUTERIA

It is generally agreed that the name *Sideroxylon* L., under which most of the native Hawaiian Sapotaceae have been described, cannot be applied to the widespread group to which they belong but must go with a group of stiff African shrubs formerly called *Argania*. The Pacific plants were called *Planchonella* Pierre until Baehni pointed out that they were generically indistinguishable from the tropical American *Pouteria* Aublet. This reduction has not been universally accepted, but it is probably sound. Convincing generic lines are notoriously hard to draw in this family. In Hawaii the specific lines are also difficult to see, though probably no one who has seen the plants in the field would place all of them in one species.

Lam (Blumea **5**: 14-30, 1942), after examination of much herbarium material, but without field study, discussed the Hawaiian representatives of this group at length, under the name *Planchonella*, and brought out very effectively their bewildering variability. His student, J. E. Boeke (Blumea **5**: 47-65, 1942), made a mathematical analysis of the data on the same Hawaiian material, showing that in almost every respect there is no discontinuity in the variation. Their conclusion is that there is only one species in the islands, *P. sandwicensis*, and that this is roughly separable into two varieties and several forms.

Baehni, in his monograph of *Pouteria* (Candollea **9**: 147-476, 1942), working under the same limitation as Lam, lack of field experience, agreed (pp. 299-300) with Lam, regarding the entire Hawaiian representation as a single species, *Pouteria sandwicensis*. He recognized the same varieties and forms as did Lam, confusing matters by ascribing the names to Lam, "Blumea V, 1942." Lam, however, did

not make these combinations under *Pouteria*, at least not in the place indicated.

As Lam points out (p. 16), "the polymorphy is so extreme that it will probably be a hard task to convince local residents that even the most divergent specimens can, at least by morphological methods only, not be separated into different species." Lam and Boeke, perforce, could only look at a series of specimens, mostly with inadequate habitat data. It is my opinion that if both geographic occurrence and local ecological conditions were taken into account, distinctive local populations would be evident, as they are in the field.

I have not had an opportunity to study these populations intensively in the field, but my impression from seeing some of them growing is that they are distinct populations, separated conspicuously by fruit characters and by some less notable vegetative ones. Therefore, I choose to follow Rock (Indigenous Trees of the Hawaiian Islands, pp. 381-392, 1913), who knew these plants better than anyone else in the field and who regards them as separate species; but I follow Baehni in placing them in the pantropical genus *Pouteria*. As most of the combinations are not available in *Pouteria,* the transfers are made here, where I list the recognized Hawaiian species. A thorough analysis, by mass collection techniques, of the remaining populations of this genus in the islands will certainly alter this arrangement; at the least, by recognition of many infra-specific entities.

**Pouteria sandwicensis** (Gray) Baehni and Degener, Fl. Hawaiiensis, 293, K10, Dec. 23, 1938.

*Sapota sandwicensis* Gray, Am. Acad. Arts Sci., Proc. **5**: 328, 1862.

*Sideroxylon sandwicense* (Gray) Bentham and Hooker.

*Planchonella sandwicensis* Pierre, Notes bot. Sapotacées, 35, 1890.

*Planchonella puulupensis* Baehni and Degener, Fl. Hawaiiensis, family 293, May 13, 1938.

**Pouteria ceresolii** (Rock) Fosberg, comb. nov.

*Sideroxylon ceresolii* Rock, Indigenous Trees of Hawaiian Islands, 385, 1913.

**Pouteria rhynchosperma** (Rock) Fosberg, comb. nov.

*Sideroxylon rhynchospermum* Rock, Torrey Bot. Club, Bull. **37**: 297, 1910.

**Pouteria spathulata** (Hillebrand) Fosberg, comb. nov.

*Sideroxylon spathulatum* Hillebrand, Flora of Hawaiian Islands, 277, 1888.

**Pouteria auahiensis** (Rock) Fosberg, comb. nov.

*Sideroxylon auahiense* Rock, Coll. Hawaii, Bull. **1**: 18, 1911.

**Pouteria aurantia** (Rock) Fosberg, comb. nov.

*Sideroxylon auahiense* var. *aurantium* Rock, Indigenous Trees of Hawaiian Islands, 391, 1913.

The fruits of this species are much smaller than those of the Maui plants, with which it was formerly associated as a variety.

## POLYPREMUM

**Polypremum procumbens** L.

A restricted colony of this weed, common in the eastern United States and extending to tropical America, has been well established for several years along the Crater Rim Trail, between the Kilauea Military Camp and the Volcano Observatory, Hawaii, *Fosberg 41781* (U.S., BISHOP, Fo).

## IPOMOEA

**Ipomoea stolonifera** (Cyrillo) Poiret IN Lamarck, Encycl. méth. **6**: 20, 1804.

*Convolvulus stoloniferus* Cyrillo, Pl. Rar. Neap. **1**: 14, 1788.
*Ipomoea fauriei* Léveillé, Repert. Sp. Nov. **10**: 154, 1911.

Molokai: Halawa, *Faurie 1035* (G, P). Kauai: Koloa, *Faurie 1049* (P).

Most of the Hawaiian "species" described in Léveillé's ill-advised publications were adequately disposed of by Rock in a commentary (Repert. Sp. Nov. **13**: 352-361, 1914), where almost all of the names were reduced to synonymy, mostly under common species. Rock regarded *Ipomoea fauriei* to be a stunted or depauperate form of *I. pes-caprae*, on the basis of one of the cited collections, *Faurie 1049*.

Léveillé cited two collections *Faurie 1035* and *1049* and described his species briefly, contrasting it with *I. acetosaefolia* (a synonym of *I. stolonifera*) and *I. pes-caprae*. I examined these collections in Geneva and Paris, and found both to be *I. stolonifera*. Number 1035

may be designated as the lectotype; since at least two sheets of it are extant, with the Geneva sheet specifically the lectotype sheet.

**Ipomoea tuba** (Schlechtendal) Don.

Oahu: beach east of Barbers Point, *Fosberg 29525* (US, BISHOP, Fo).

Most of the moonflowers of the Hawaiian Islands belong to either *Ipomoea alba* L. or to *I. tuboides* Degener and van Ooststroom; the former escaped from cultivation in moist places, the latter native, endemic in the Hawaiian Islands, and found in arid regions. What seems to be true *I. tuba,* a plant widespread farther south and west in the Pacific and very rare in the Caribbean, was found locally in 1948 at the top of the beach east of Barbers Point on coral sand exposed to the sea, a habitat entirely normal for this species. Degener and van Ooststroom did not contrast their species with *I. tuba,* which is probably its closest relative, but *I. tuba* has thicker, sub-fleshy leaves; a coarser habit; and broader sepals, rounded at the apex, that become orbicular and accrescent in fruit; and larger, globose capsules. *I. alba* (*I. bona-nox*) may be distinguished by its prominently mucronate sepals and glabrous seeds.

## NAMA

**Nama sandwicensis** Gray.

Inasmuch as this attractive species, now seldom seen, has been generally known from sand dunes and sand flats, I was surprised to find a tiny colony of it in a crevice in the indurated volcanic tuff on the seaward end of Koko Head, Oahu, *Fosberg 41431* (Fo).

## VITEX

**Vitex ovata** Thunberg.

Corner, in his usual lucid language (Gard. Bull. **10**: 256-260, 1939), shows rather conclusively that the common widespread, usually simple-leafed, depressed strand *Vitex* in the western Pacific is distinct from the upright inland *V. trifolia* L. It is common on sand dunes and beaches in the Hawaiian Islands, where it has generally been regarded as var. ***simplicifolia*** Chamisso, var. *ovata* (Thunberg) Makino, or var. ***unifoliata*** Hillebrand of *V. trifolia.* The fact that *V. ovata* occasionally has a few compound leaves and that *V. trifolia* occasionally has a few simple ones has obscured the significant differences in the

calyx and corolla, in the inflorescence, in the leaf shape, and in the growth habit. Corner shows that these differences hold, even when the habitats are reversed.

OCIMUM

**Ocimum basilicum** L.

Molokai: south coast at Kamalo, growing on crushed volcanic rock along a road embankment in small numbers, *Fosberg 13544* (Fo), *29625* (Fo).

The sweet basil, long cultivated in the Hawaiian Islands, was noted as an escape as early as 1937 and was collected again in 1948.

**Ocimum gratissimum** L.

This species may be distinguished from *O. basilicum* by its much taller, woody habit; by its broader, prominently serrate leaves; by its smaller corollas, greenish instead of white; and by the length of the upper calyx lip, which is much longer than the lower.

It is abundantly naturalized in the Koko Head region of Oahu, where I first noticed it in 1937, *Fosberg 13547* (Fo) and *29653* (Fo), and where Egler (Ecol. Monogr. **17**: 405, 415, 421, 432, 1947) recorded it as *O. basilicum*. It is also common along the coastal strip of east Molokai, between Kamalo and Pukoo, *Fosberg 13544a* (Fo), *29621* (Fo). Specimens from Koko Head in the Bishop Museum Herbarium were collected in 1925, *Judd 37;* in 1931, *Wilder;* in 1934, *Swezey;* and in 1948, *Cowan 860*. Caum collected it in Waipio, Oahu, in 1937.

PERILLA

**Perilla frutescens** var. **nankinensis** (Decaisne) Bailey.

Oahu: Honolulu, *Fosberg 29838* (Fo); *Greenfield* in 1958 (BISHOP); Pawaa junction, *Yamaguchi* in 1930 (BISHOP).

This herb cultivated on Oahu under the name of beefsteak plant, is used by Japanese in preparation of *ume boshi,* or pickled plums, and in salads and fritters.

ASARINA

**Asarina erubescens** (Don) Pennell.

This is the plant reported from Hawaii as *Maurandya erubescens* (Don) Gray (Fosberg, Torrey Bot. Club, Bull. **70**: 389, 1943). The late F. W. Pennell (Acad. Nat. Sci. Philadelphia, Proc. **99**: 173-175,

1947) has united the genera *Asarina* Miller and *Maurandya* Ortega and has made the appropriate combinations. The characters of the two genera sound remarkably alike, even though *Asarina* is from southwestern Europe and *Maurandya* is from Mexico and the southwestern United States.

## PSYCHOTRIA

I plan to discuss the Hawaiian species of *Psychotria,* including *Straussia,* in a future paper; but to validate certain names for immediate use in this genus, I propose the following combinations.

**Psychotria hawaiiensis** (Gray), Fosberg, comb. nov.
*Straussia hawaiiensis* Gray, Am. Acad. Arts and Sci., Proc. **4**: 43, 1860.

**Psychotria hawaiiensis** var. **hillebrandii** (Rock) Fosberg, comb. nov.
*Straussia hillebrandii* Rock, Indigenous Trees of Hawaiian Islands, 453, 1913.

**Psychotria kaduana** (Chamisso and Schlechtendal) Fosberg, comb. nov.
*Coffea kaduana* Chamisso and Schlechtendal, Linnaea **4**: 33, 1829.
*Straussia kaduana* (Chamisso and Schlechtendal) Gray, Am. Acad. Arts and Sci. **4**: 43, 1860.

**Psychotria mariniana** (Chamisso and Schlechtendal) Fosberg, comb. nov.
*Coffea mariniana* Chamisso and Schlechtendal, Linnaea **4**: 35, 1829.
*Straussia mariniana* (Chamisso and Schlechtendal) Gray, Am. Acad. Arts and Sci., Proc. **4**: 43, 1860.

**Psychotria fauriei** (Léveillé) Fosberg, comb. nov.
*Straussia fauriei* Léveillé, Repert. Sp. Nov. **10**: 155, 1911.

## SAMBUCUS

**Sambucus mexicana** var. **bipinnata** (Schlechtendal and Chamisso) Schwerin, Mitt. Deutsche Dendr. Ges. **18**: 38, 324, 1909.
*Sambucus bipinnata* Schlechtendal and Chamisso, Linnaea **5**: 171, 1830.

Oahu: Honolulu, Round Top, *Fosberg 29487* (US, Fo), *41456* (US, BISHOP, Fo).

Hawaii: South Kona, Kealakekua, 450 m. *Fosberg 41724* (US, Fo).

The cultivated elderberry, introduced and now common in many parts of the Hawaiian Islands, especially on Oahu and in Kona, Hawaii, commonly has been referred to *Sambucus canadensis* L., the common wild species of the eastern United States (see Neal, B. P. Bishop Mus., Sp. Pub. **40**:705, 1948). However, because of the treelike habit and the slender, non-fistulose branchlets, which do not much resemble those of the plant seen throughout the eastern states, I have long hesitated to apply the same name to it. Actually, the Hawaiian plant resembles strikingly the species common in door yards in the northern Andes, where it is widely used medicinally under the name *sauco*. It is also commonly found around dwellings in Kona. On Oahu it was first seen in 1937 at the University of Hawaii, where it had been planted; but has since become naturalized on Round Top and in the head of Manoa Valley, where it is something of a pest. As in the Andes, it sets fruit only sparingly. The species in this genus are hard to identify, as no general revision is available; but comparison with herbarium material shows that it is a good match for *S. mexicana* Presl ex DC., and the frequently somewhat bipinnate leaves place it in var. *bipinnata* if that variety is any good.