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**Miscellaneous Notes on some American and
Hawaiian Dicotyledons**

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Recently I have been privileged to examine several hundred *exsiccatæ* sent to me by Dr. Otto Degener from the Hawaiian Islands, where they were collected with the aid of a grant from the National Science Foundation. Growing out of my detailed study are the following notes on taxa in genera which I have studied extensively in years past. To these are added information concerning two interesting finds by Dr. Benjamin C. Stone and some specimens of *Bidens* found a year or two ago in a large assortment of materials sent to me for review or for redetermination from the University of Copenhagen through the kind offices of Dr. J. P. Hjerting of the Botanical Museum and Herbarium of that institution.

Bidens napaliensis Sherff, B. P. Bishop Mus., Occ. Papers 20 (1) : 22, fig. 10, 1949.

This rare species, a congener of *B. conjuncta* Sherff, has been known until now only from the two type specimens in the Gothenburg Herbarium (GB), *Fagerlind and Skottsberg 6,555*, along cliff trail to Napali, Kauai, March 10, 1948 (my photographs nos. 3,969 and 3,970) at Chicago (F). Before me is a suite of additional specimens from almost the exact type locality: *Otto and Isa Degener and Mr. and Mrs. William Cadenchead 27,184*, sea cliffs and ledges, Napali Trail near Makena [Makana], Kauai, November 25, 1960. They conform well to the type description except that among the many typically nude achenial awns examined are a very few with one to five retrorse barbules. Two specimens have been deposited at Chicago with the Chicago Natural History Museum (F).

Dodonaea eriocarpa* var. *waimeana Sherff, *Am. Jour. Bot.* **32**: 206, 1945.

This variety was based upon a type at Paris (P), *Abbé Faurie 275* from Waimea on the island of Kauai, although various other specimens were cited from Kauai, as well as some from Oahu and Lanai. Recently Otto and Isa Degener and Mr. and Mrs. William Cadenhead collected a large suite of additional, and fairly typical, specimens in what was close to the type locality (their no. 27,213), a 2- to 3-foot bush, capsules clustered, "dryish ridge," Kukui Trail, Waimea Canyon, Kauai, November 21, 1960. On a "dryish slope" at the same locality and on the same date they obtained another suite of what they called a 6-foot tree. This second suite (their no. 27,214) differs from the first, or more nearly typical, one in having fruits mostly 2- (very seldom 3-) winged and the leaves subglabrous. Whether these differences are attributable to hybridization with some neighboring variety or to mutation poses a question that I am unable to answer at present.

Dodonaea eriocarpa* var. *Vaccinioides* f. *Salicifolia Degener and Sherff ex Sherff, *Am. Jour. Bot.* **38**: 57, 1951.

Heretofore, this rare form has been known only from the type collection (*Degener et al. 19816b*, from the 1859 lava flow at 7,000 feet altitude in northwestern Hawaii). Recently a suite of three fairly typical specimens was collected by Mr. and Mrs. Charles Christensen at Makahalau, in a gulch north of Mauna Kea summit, on the island of Hawaii, December 9, 1961. I have been permitted to examine these specimens through the courtesy of Dr. Otto Degener, whose distribution number (27822) the suite bears.

Euphorbia multiformis* var. *kapuleiense Degener and Sherff f. ***pekelonis*** Degener, Degener, and Sherff, new form.

Humilis, prostrata, 1.5 dm. alta, foliis principalibus ovalibus (non "plerumque lineari-oblongis vel anguste ellipticis"), lamina plerumque 7-11 mm. longis et 5-8 mm. latis; ramulis ultimis penultimisque magis hispidulis interdum foliosisimis foliis minimis ovali-rotundatis inferne marginaliterque valde hispidulis tantum circ. 2-4 mm. longis.

Specimen examined: *Noah Pckelo, Jr. 7*, growing prostrate, salt-sprayed, north coast, Kahinaakalani, island of Molokai, July 4, 1961 (type, F). (See remarks below.)

Euphorbia multiformis var. *kapuleiense* Degener and Sherff (ex Sherff, *Bot. Gaz.* **97**: 591, 1936) has been known previously from only

three localities near the coast of southeastern Molokai. However, recently a specimen collected by Noah Pekelo, Jr. (his no. 6) has come to hand (F). It was collected from "small trees about 5 dm. tall" in Makakupaia pasture, southwestern Molokai, July 10, 1961; and an additional specimen from northern Molokai is now before me (F): *Noah Pekelo, Jr. 49*, 400 feet, Pohakuloa, Molokai, December 6, 1961. Both specimens match the type collection well, as may be seen on comparison with my photograph, number 3120 (F), of the type in Delessert Herbarium at Geneva.

An additional folder, *Pekelo 49*, has the leaf-blades mostly more broadly elliptical to oval than in the variety proper, but seems too similar to warrant segregation. However, the two small specimens of *Pekelo 7* now before me (F) offer a strikingly different aspect from that of the variety proper. All leaves are comparatively tiny and broadly oval or even oval-rotundate. The specimens, as noted above, were found in the far northwest of Molokai, at a place close to Moomomi, an area remarkable for its endemics [*vide Degener, Taxon 10 (7): 227, 1961*]. From geographic and other considerations, it seems that *Pekelo's 7* is best treated as a geographic form. I take pleasure in commemorating Mr. Pekelo's discovery with an epithet in his honor.

Euphorbia Celastroides* var. *haupuana Sherff, Bot. Gaz. **97**: 594, 1936.

In my Revision of the Hawaiian species of *Euphorbia* (Missouri Bot. Gard., Ann. **25**: 30, 1937), I have listed specimens for this variety from southeastern Kauai only. Recently, a considerable collection of what is unmistakably this variety has been made on the extreme western side of Kauai, affording a most remarkable example of discontinuous distribution: *Otto and Isa Degener and William Cadenhead 27,173*, arid talus and ledges along coast, Polihale, Kauai, November 22, 1960 (F, two sheets; a large suite to be distributed to various herbaria).

The variety is characterized by its extremely delicate terminal branchlets, in this respect approaching varieties of *E. multiformis* Hooker and Arnott.

Euphorbia Celastroides* var. *Humbertii Sherff, Bot. Gaz. **97**: 596, 1936; Missouri Bot. Gard., Ann. **25**: 32, 1937; Am. Jour. Bot. **38**: 54, 1951.

A distinguishing character of this little-known species from the islands of Oahu and Kauai is the slender, elongate pedicels supporting the cyathia. These were described by me (1937) as "slender, rigid, suberect, and finally 13 mm. long." Recently the Degeners collected on Kauai an exceptionally fine suite of material with more elongate pedicels, frequently 19 to 21 mm. long: *Otto and Isa Degener 27,339*, growing 3 to 5 feet tall, grassy, rocky slope near top, west slope of Omoe, near Koloa, Kauai, March 16, 1961 (F, two sheets; other specimens to be distributed).

Lipochaeta integrifolia (Nuttall) A. Gray, Am. Acad. Arts Sci., Proc. 5: 130, 1861.

In my revision of the genus *Lipochaeta* DC. (B. P. Bishop Mus., Bull. 135: 23-83, figs. 7-28, 1935) no specimen of this species was listed for the island of Kauai. Mention was made (p. 43), however, of the fact that originally Nuttall cited material from Kauai, in addition to his type material from Oahu. I have before me a large suite of beautifully preserved specimens collected by the Degeners and William Cadenhead (their no. 27,167) on dunes of sand and soil, *makai* [toward the sea] of Puu Keke, Kauai, November 23, 1960. Otto Degener will distribute these to various major herbaria.

Lipochaeta profusa* var. *robustior Degener and Sherff ex Sherff, Bot. Gaz. 95: 96, 1933.

This variety was founded upon a single suite of specimens (Swezey, Degener distribution no. 4,185) collected in lowlands 2 miles from Kekaha, southwesternmost Kauai, July 18, 1932. Subsequently, Degener found specimens of it growing in a rocky pasture, arid except in winter, alt. 200 feet, "Waipio Valley, Kekaha," February 7, 1950. More recently the Degeners and William Cadenhead collected a large additional suite of fine specimens at a point some 19 to 20 miles northwest of the Kekaha locality: *Degeners and Cadenhead 27,168*, erect, 2 to 4 feet tall, dry talus at edge of dunes, Polihale, western Kauai, November 22, 1960 (F, two sheets; other specimens to be distributed).

Nototrichium viride Hillebrand, Fl. Hawaiian Islands, 373, 1888.

This species, at the time of my monograph of the genus *Nototrichium* Hillebrand (Bot. Leaflets 4:2-21, 1951), was known in its typical form only from the type locality on Kauai, Hanapepe and along the Hanapepe River. Subsequently, I cited (Am. Jour. Bot. 43: 475,

1956) additional material from arid cliffs at the bottom of Kukui Trail, Waimea Canyon, a locality some 24 to 32 miles northwest. Before me is a suite of more recently collected specimens: *Degeners and Cadenheads 27,164*, spreading, dense, 6-foot-tall, 10-foot-wide bush, in sunny canyon, Halemanu, Kauai, November 15, 1960 (F; specimens to be distributed). These lack flowers and fruits but their foliage matches closely that of the earlier collections. They extend the total range roughly 40 miles northwestward from the type locality.

Tetraplasandra oahuensis subglobosa Degeners and Sherff, new variety.

Varietati *venulosiori* similis. Folia coriacea, supra saepe plus minusve nitida sed non conspicue depresso-venulosa, foliolis moderate latioribus et apice obtusioribus (interdum emarginatis), basi abruptius rotundatis vel etiam subtruncatis, terminali usque ad 12 cm. longo (stipite excluso) et ad 8.7 cm. lato. Pedunculi plerumque 3-7, umbellate congregati, 4-8 cm. longi, basim versus 1-nodosi, glabri, apice 7-16-pedicellati pedicellis glabris demum nunc rectis nunc arcuatis, laxe patentibus, usque ad circ. 2 cm. longis. Flores non visi. Drupae ovoideo-globosae, extus obtuse 5-7-angulatae, calyce circ. 9 mm. altae et circ. 6 mm. crassae, atrae, glabrae; stylopodio parvo supra angustato circ. 1 mm. alto apice 5-7-stigmatato (stylo obsoleto).

Similar to var. *venulosior*. Leaves coriaceous, often more or less shiny above but not conspicuously depressed-veiny, leaflets moderately wider and at tip more obtuse (at times emarginate), at base more abruptly rounded or even subtruncate, terminal leaflet up to 12 cm. long (stipe excluded) and to 8.7 cm. wide. Peduncles commonly 3 to 7, umbellately clustered, 4 to 8 cm. long, 1-nodose near base, glabrous at tip, 7- to 16-pedicellate with pedicels glabrous, in age now straight now curved, loosely spreading, up to about 2 cm. long. Flowers not seen. Drupes ovoid-globose, on surface obtusely 5- to 7-angled, with a calyx about 9 mm. tall and about 6 mm. thick, black, glabrous; stylopodium small, narrowed above, about 1 mm. tall, with 5 to 7 stigmata at tip (style not distinct).

Type specimen: *Otto and Isa Degener 27,217*, in forest, 2,000 feet alt., Bryan's Mountain Trail, Koolau Range, Oahu, December 11, 1960 (F, together with one isotype; also a dozen or more isotypes yet to be distributed to herbaria).

Tetraplasandra oahuensis var. *venulosior* Sherff, Bot. Leaflet 8:2, 1953.

To this variety may be referred a considerable suite recently collected by the Degeners at a locality in the Koolau Range, Oahu, not far from the type locality of the variety (their no. 27,218): forest at 1,800 feet, Bryan's Mountain Trail, Koolau Range, December 11, 1960 (F; specimens to be distributed). These specimens are atypic in having many leaves with 7 to 11 leaflets, not just 5 to 7, as in the type.

Since the varietal type (Edward P. Hume 165) was without drupes, the type description omitted them. The present collection excels in having numerous essentially mature drupes, which are black in the dry state, urceolate-cylindric to -prismatic, 3- to 4-angled, calyx about 1 cm. tall and about 5 mm. thick below middle, capped at top by a conic stylopodium 2 mm. tall and bearing upon the obsolete style mostly 3 to 4 stigmata. One specimen has a large umbel of 11 peduncles, which are sparsely nodulose from base to apex, each bearing up to 10 to 15 slender, straightish, or subarcuate pedicels up to about 1.5 cm. long.

Cheirodendron trigynum var. **mauiense** Lévillé, Fedde Repert. Sp. Nov. Reg. Veg. **10**: 154, 1912.—Sherff, Fieldiana, Bot. **29**: 22, 1954.

This variety has been collected in several places in east Maui, Hawaiian Islands. Its drupes I describe (loc. cit.) as "mostly 5-5.5 mm. long and nearly as thick." However, on two large suites of specimens now before me, from still another locality in east Maui, the drupes are noticeably smaller, measuring a scant 3 to 4.5 mm. or (rarely) 5 mm. in length and about 2.5-4 mm. in thickness. Because of the smaller drupes, they may well be set apart from variety *mauiense* as follows:

Cheirodendron trigynum var. **mauiense** f. **parvulum** Degeners and Sherff, new form.

E forma *mauiensi* fructibus minoribus 3-4.5 raro -5 mm. longis et circ. 2.5-4 mm. crassis differt.

East Maui: small tree in rain forest, near Waikamoi, July 4, 1961, *Degeners 27,589* (topotypes, F; specimens to be distributed); rain forest, Waikamoi, July 2, 1961, *Degeners 27,590* (type and isotypes, F; to be distributed).

Cheirodendron trigynum var. **Degereni** f. **pauciflorum** Sherff, Bot. Leaflets **5**: 5, 1951; Fieldiana, Bot. **29**: 36, 1954.

The specimens previously cited for this form came from southeastern and northwestern Hawaii. The suite before me of a dozen or more specimens was recently collected from a locality intermediate between the above-cited parts of Hawaii by the Degeners (their no. 27,588) in jungle along the Saddle Road, *mauka* [mountainward] of Hilo, Hawaii, July 9, 1961 (F; specimens to be distributed).

Dodonaea eriocarpa var. **Degeneri** Sherff, Am. Jour. Bot. 32: 208, 1945.

This variety was described originally from specimens from west Maui. Related specimens from the islands of Kauai, Oahu, Lanai, and elsewhere were segregated as form *decipiens* (loc. cit.). However, specimens recently obtained on Kauai by Don Plucknett and sent to me through the kindness of Otto Degener, are referable to the variety proper (that is, to form *Degeneri*), thus extending the range of variety *Degeneri* (f. *Degeneri*) to Kauai.

Other specimens recently collected by Otto and Isa Degener on the island of Hawaii must be referred to variety *Degeneri*, thus extending the known range of variety *Degeneri* (f. *Degeneri*) to Hawaii: *Otto and Isa Degener 27,574*, mauka of Kulani Prison (F; specimens to be distributed).

Lipochaeta lobata var. **denticulata** (Wawra) Sherff, Bot. Gaz. 95: 92, 1933; B. P. Bishop Mus., Bull. 135: 51, 1935.

This variety, noteworthy for its foliar polymorphism, has been known heretofore only from the island of Oahu, from which I listed numerous specimens (B. P. Bishop Mus., Bull. 135). Recently a small but adequate specimen has come to hand from the far northwestern part of the island of Kauai: *Benjamin C. Stone 1,479*, alt. about 500 feet, wetter more secluded area at Hanakapiai, Dec. 24, 1956 (F). This specimen has leaves seemingly too closely matched by those from the valley opposite Koko Head, Oahu, Jan. 28, 1928 (F), *Degener 2,482* and from Kuliouou Valley, Oahu, Dec. 11, 1927 (F), *Degener 4,201*, to permit separation as an endemic Kauai variety.

Bidens waimeana Sherff, Bot. Gaz. 76: 164, 1923; Field Mus. Nat. Hist., Bot. Ser. 16: 144, pl. 23, figs. *i-o*, 1937.

This rare species was described solely from plants collected by A. A. Heller in 1895 on Kaholuamanoa [Kaholuamanu], above Waimea, on the island of Kauai. These were rather small, delicate specimens, as may be seen by my illustration (loc. cit.). A specimen now before me is from very close to the type habitat. It is from a larger, coarser plant which is evidently merely a more robust state, as might well be expected from favorable growth conditions. The achenes have a body 10-15 mm. long (not just 6-8 mm., as originally described). One head, abnormally larger, has the external phyllaries narrowly

oblong, 8-9 mm. long and 2-3 mm. wide: *Benjamin C. Stone 1,621*, alt. 1,100 feet, on dry, rocky slope, Waimea Canyon Lookout, Kauai, Dec. 29, 1956 (F).

Bidens heterodoxa* var. *atheistica Fernald, *Rhodora* **34**: 116, 1932, form *retrorsa*, new form.

Achaenia brevissime aristata, aristis sub 0.5 mm. longis, retrorsum hamosis. Achenes very shortly awned, awns under 0.5 mm. long, retrorsely barbed.

Type specimens: *Marcel Raymond, J. Kucyniak, and J.-P. Goussy 84*, found in gravelly places of the St. Lawrence River, in type region for the variety proper, namely f. *atheistica*, Berthier-en-Bas, Bellechasse County, Quebec, September 25, 1952 (C).

As known hitherto, *Bidens heterodoxa* Fernald and St. John (*Rhodora* **17**: 23, 1915) has had four recognized varieties with well-developed achenial awns or aristae (*heterodoxa*, *orthodoxa*, *agnostica*, and *Monardaefolia*). In a fifth variety (*atheistica*), known only from Bellechasse County, Quebec, the achenial awns are "lacking or very minute and antrorsely barbellate (*vide* Sherff in *North American Flora* **II**, **2**: 91, 1955). The present plant was collected in the same county (Bellechasse) in Quebec as was the type of var. *atheistica* proper (that is, f. *atheistica*), but it differs in having the awns of the mostly very short-awned achenes retrorsely (not antrorsely) setulose.

Bidens pilosa* var. *alausensis (H.B.K.) Sherff, *Bot. Gaz.* **81**: 35, 1926.

In my revision of *Bidens* (*Field Mus. Nat. Hist., Bot. Ser.* **16**: 451, 1937), I gave the distribution of this variety as "The Andes region of western South America from Colombia through Ecuador and Peru to Chile and in southwestern Bolivia; also in the Galapagos Islands." Now, I have before me a specimen from the Botanical Museum of Copenhagen (C) that extends this range to northeastern Venezuela. It was collected by Heinrich F. A. Eggers (his no. 13,288) in 1891 at an altitude of about 3,500 feet, near the Macareo River (or Creek) in northeastern Venezuela.