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MISCELLANEOUS NOTES ON HAWAIIAN PLANTS—5¹

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THIS PAPER PRESENTS several new taxa and critical taxonomic, nomenclatural, and distributional notes on native and exotic plants in the Hawaiian Islands, in the genera *Gleichenia*, *Adiantum*, *Polypodium*, *Thelypteris*, *Panicum*, *Setaria*, *Dianella*, *Arundina*, *Odontochilus*, *Santalum*, *Polygonum*, *Rumex*, *Bocconia*, *Hunnemannia*, *Eschscholtzia*, *Lepidium*, *Fragaria*, *Rubus*, *Cassia*, *Medicago*, *Zanthoxylum*, *Abutilon*, *Hypericum*, *Tibouchina*, *Linociera*, *Amsinckia*, *Jacobinia*, *Hedyotis* and *Filago*. Attention is directed to certain changes affecting Hawaiian plants published in places not likely to come to the attention of those primarily concerned with the Hawaiian flora. Certain records are noted here that have previously been included in mimeographed lists and in other publications of limited distribution. Herbarium abbreviations are those of the Index Herbariorum, with the addition of *HNP* for the herbarium of Hawaii Volcanoes National Park and *Fo* for specimens still in possession of the author.

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Gleichenia linearis (Burm. f.) C. B. Cl. var. ***tomentosa*** (Luer. s.)
Fosberg, n. comb.

Mertensia emarginata Brack., U.S. Expl. Exp. 16:297, 1854
(non Raddi, 1825).

Gleichenia emarginata (Brack.) Moore, Ind. Fil. 1:577, 1862
(non Raddi, 1825).

Gleichenia dichotoma var. *tomentosa* Luer. s. in Wawra, Flora
58:419, 1875.

Gleichenia dichotoma var. *emarginata* (Brack.) Hbd., Fl. Haw.
Is. 545, 1888.

Dicranopteris emarginata (Brack.) Rob., Bull. Torr. Cl. 39:240,
1912.

Dicranopteris sandwicensis Degener, Fl. Haw. 5:Dicr. Sandw.
1940.

This variety, found usually at higher elevations than var. *linearis*, except on Hawaii where it is the commonest form and reaches very low elevations, is apparently endemic to the Hawaiian Islands, although in some respects it resembles var. *ferruginea* of the western Pacific, which also has abundant reddish brown wool. It differs from the nearly glabrous var. *linearis* in having abundant reddish brown loose hair on the undersides of the pinnules, in larger lateral segments at the forks of the stipe, and in a somewhat firmer texture and more prominent venation of the pinnules. In recent years it has commonly been regarded as a distinct species, usually, but incorrectly, called *G. emarginata*. The fact that it appears to hybridize, or at least to intergrade, with var. *linearis* is not, in itself, necessarily sufficient reason to deny it specific rank. However, the minor nature of the differences outlined above, with complete similarity in habit and ecological behavior, seem to indicate the varietal, rather than specific category. I see little reason for taking up the segregate genus *Dicranopteris* for the group in *Gleichenia* to which *G. linearis* belongs. One could, of course, break up any complex genus such as *Gleichenia* into smaller ones, but in this case even pteridologists do not all seem to agree on how many genera should be carved out, or even that any should. The aggregate *Gleichenia* seems to be reasonably coherent phylogenetically and also readily recognized.

Stunted plants seen, but not collected, in fumarole areas near Aloi Crater, Hawaii Volcanoes National Park, were devoid of wool and looked in all respects like dwarfed individuals of var. *linearis*.

Plants with little or no wool have also been seen occasionally elsewhere in the Park, contrary to Degener (*Phytologia* 15:43, 1967).

Adiantum cuneatum Langsd. and Fisch.

Recent observations indicate that *Adiantum cuneatum* has become far more common in the Hawaiian Islands, especially on Oahu, than the native *A. capillus-veneris*. All occurrences of maiden-hair fern examined on a number of field excursions in the last six years are *A. cuneatum*, if the criterion given me years ago by Dr. Wm. R. Maxon (see *Bull. Torr. Bot. Club* 70:387, 1943), of the veins of the pinnules ending in the sinuses between the teeth, is reliable. Degener's plate, to illustrate *Adiantum capillus-veneris* (*Fl. Haw.* 17:A.C. 3/11/'37) shows the veins ending in the sinuses in the enlarged drawing of a leaflet, and the habit is that of *A. cuneatum*. His text seems to be based on both species, but does not give good diagnostic characters.

Polypodium scolopendria Burm. f., *Fl. Ind.* 232, 1768.

It should be pointed out that Burmann spelled the specific epithet of this fern as given above. Since this epithet was doubtless taken from the generic name *Scolopendria* it is an undeclinable substantive and should not be carelessly altered to *scolopendrium* as by the Degeners (*Phytologia* 15:45, 1967).

Thelypteris totta var. ***hirsuta*** (Mett.) Morton, *Contr. U.S. Nat. Herb.* 38:73, 1967.

Those who object to the ugly epithet *goggilodus* will be pleased to learn that the plant long known as *Dryopteris goggilodus* (Schkuhr) O. Ktze. (usually spelled *D. gongylodes*), common in wet places and old taro patches in Hawaii, has been shown to be specifically identical with the earlier *Polypodium totta* Thunb., originally described from South Africa. It has been transferred to *Thelypteris* as *T. totta* (Thunb.) Schelpe (*Jour. So. Afr. Bot.* 29:91, 1963). The Hawaiian plants have the rachis and blades somewhat hairy beneath and belong to var. *hirsuta*. This form has also been called *Aspidium resiniferum* Kaulf., *Enum. Fil.* 237, 1824, based on a Hawaiian specimen.

***Panicum dichotomiflorum* Michx.**

Hawaii: Hawaii National Park, Volcano House garden, *Fagerlund and Mitchell 638* (HNP); Kau, Naalehu, *Hosaka 3062* (US).

This species, native to the eastern U.S., and with definitely weedy tendencies, has apparently recently become established on Hawaii.

***Setaria sphacelata* (Schum.) S. & H.**

Hawaii: Hawaii National Park, Volcano House garden, *Fagerlund and Mitchell 643* (HNP).

This was originally determined as *S. geniculata* (Lam.) Beauv., but it seems to be the same reduced form of the Old World *S. sphacelata* that has been established for many years in the San Joaquin Valley, in Central California. It is an annual with a more slender spike with less prominent yellow bristles than those of *S. geniculata*.

***Dianella sandwicensis* var. *lavarum* (Deg.) Fosb., n. comb.**

Dianella lavarum Degener, Fl. Haw. Is. 68 D. L. 1932.

The common form on the island of Hawaii, differing from var. *sandwicensis* principally in its pale blue flowers with very slightly wider petals, somewhat smaller panicle and pale blue fruits which tend to be shorter than in the other varieties. These slight differences do not seem to be sufficient to indicate specific rank.

***Dianella sandwicensis* var. *multipedicellata* (Deg.) Fosb., n. comb.**

Dianella multipedicellata Degener, Fl. Haw. 68 D. M. 1932.

This local form, scarcely discernible in the field, found along the crest of the Waianae Mountains, finally produces more flowers per panicle branchlet, but there seems no exact line to be drawn between it and var. *sandwicensis*. The question, in this case, does not seem to be whether it merits specific rank, but rather if it can even be maintained as a variety. It should be pointed out that neither of the two taxa here reduced to varietal rank were even regarded as worthy of mention by Schlittler, monographer of the genus (Mono-

graphie der Liliaceen Gattung *Dianella* Lam., Mitt. Bot. Mus. Univ. Zürich 163:1-283, 1940).

Arundina graminifolia (Don) Hochr., Bull. N.Y. Bot. Gard. 6:270, 1910.

Bletia graminifolia Don, Prodr. Fl. Nepal 29, 1825.

Arundina bambusifolia Lindl., Gen. Sp. Orch. 125, 1831.

Lindley's name has been generally used in Hawaii for the common introduced bamboo orchid, now widespread on the island of Hawaii. Don's epithet clearly has priority, and seems to represent the same plant. This species is perplexingly variable, ranging from a single cane to a caespitose cluster of several to many canes, from a couple of dm. to 2 m. tall, with a single flower to an open cluster of half dozen or more.

Odontochilus sandvicensis (Lindl.) B. & H.

In an interesting popular article on Hawaiian orchids (Bull. Orch. Soc. Hawaii 23:12-15, 1965), Degener and Degener imply that the genus *Odontochilus* is, on Oahu, limited to the top of Puu Kaala at 4,000 ft. Actually, in the 1930's this species was fairly common along the main ridge of the Koolau Range, at about 700 m., on the Waikane-Schofield Trail. This was then a good place to show it to students. Possibly the colony has now been eliminated, as the crest of the Koolau Range has been used for military maneuvers and parts of it, at least, have been very badly devastated. A specimen collected by the U. S. Exploring Expedition, in U. S. Nat. Herb., is labeled "Mts. behind Honolulu, Oahu." Hosaka, Occ. Pap. Bishop Mus. 13:221, 1937, records this species as *Anoectochilus sandvicensis* Lindl., from his Ohia and Cloud Zones in Kipapa Gulch, Koolau Mts., Oahu.

It is of interest, also, to point out that in 1934 Harold Morley found a second Oahu species of this genus, apparently similar to *O. apiculata* (Wms. & Fosb.) Deg. & Deg., on a high ridge above Sacred Falls, Hauula. This specimen was unfortunately destroyed, along with other specimens of the genus being studied by Mr. Morley, because of overzealous cleaning-up activities by a colleague. Repeated subsequent searches in the same area failed to turn up more material.

The flowers of this plant were pale green, as in *O. apiculata*, rather than yellow with red spots, as in *O. sandvicensis*. Concerning *Anoectochilus jaubertii* Gaud., it is only fair to point out that Mr. Morley, in 1935, spent a great deal of time attempting to find criteria to separate *A. jaubertii* from *A. sandvicensis*, but found no separation whatever into two morphologically distinct populations. *O. apiculatus* had not yet been discovered at that time, unless Morley's green-flowered specimen was close enough to go in that species. This work was unfortunately halted, and Morley's interest in botany discouraged, by the unnecessary destruction of all his material.

The International Code of Botanical Nomenclature, although permitting corrections of typographic or orthographic errors (Art. 73), does not sanction changes in an author's intentional latinization of personal, geographic, or vernacular names (Art. 73 Note 5). Since *w* was commonly latinized as *v* by earlier authors, Lindley's spelling of *sandvicensis* should be preserved.

Santalum pyrularium Gray

The plant reported by me (Occ. Pap. Bish. Mus. 23:34, 1962) from the Wahiawa Bog, Kauai, *Fosberg 41473*, as a dwarf bog form of *Santalum ellipticum* Gaud. was considered by the late Dr. H. U. Stauffer, profound student of the Santalaceae, to be rather a dwarf form of *S. pyrularium* Gray. I have not seen any flowering material from the bog, and have not cut the single fruit available to me to see if the stone is rugose. However, the habitat is a much more likely one for *S. pyrularium*, and the bog vegetation contains dwarfed forms of other trees from the surrounding forests. Doubtless this plant represents *S. pyrularium*, which occurs in these Kauai forests as a tree.

Polygonum capitatum Ham. ex Don, Prod. Fl. Nepal 73, 1825.

For several years this rather ornamental species has been common along the Hilo–Volcano highway at middle elevations (*Fosberg 46007* (US, BISH, Fo), *Mueller-Dombois H-15* (UH); *Wentworth* in 1964 (Fo, US, BISH)). It is a low-growing, spreading plant with leaves marked with maroon and heads of pink flowers. Recently a single large clump was found along the Chain-of-Craters Road in Hawaii Volcanoes National Park, near Makaopuhi Crater, *Fosberg 48316* (US). It is a native of the Himalayas and may be expected

to spread in cooler areas. It was probably brought in as an ornamental.²

Polygonum punctatum Ell.

Two varieties of this complex and variable species, native to North and South America, have been found in the Hawaiian Islands. They have the perianth conspicuously dark-punctate, which distinguishes them from other weedy members of *Polygonum* sect. *Persicaria* introduced into the islands. The varieties may be distinguished as follows (var. *punctatum* has not yet been found in Hawaii):

Ocreae glabrous, with very short cilia on margin....var. *majus* (Meisn.) Fassett
Ocreae sparsely strigose, with long cilia on margin.....var. *parviflorum* Fassett

Polygonum punctatum var. *majus* (Meisn.) Fassett, *Brittonia* 6:373, 1948.

Hawaii, on road to Waimea, in water, in 1926, *Degener* 8783 (US).

Polygonum punctatum var. *parviflorum* Fassett, *Brittonia* 6:381, 1948.

Hawaii: Waimea in 1916, *Hitchcock* 14460 (US); rainswept plateau at head of Alakahi Valley, Kohala, 3,800 ft., *Degener et al.* 20,060 (US); Wright Road, Puna, *Degener & Degener* 30957 (US).

Rumex brownii Campd.

This has small oblong, long-petiolate leaves, the flowers in well separated half-verticils on long terminal racemes or panicle branches, the pedicels strongly down-curved in fruit; fruiting bracts pectinate, the processes uncinatate.

Hawaii: Kona, Kikiaeae, in koa grassland, 5,000 ft., *Christ* in 1958 (BISH).

² Since the above was written, *P. capitatum* has become well established and very common along the main highway up to the Park entrance and for a mile or more along the roadside within the Park, and also locally on the Crater Rim Road north of the Volcano Observatory, *Fosberg* 50389 (US, BISH, Fo). It was not found again at the locality near Makaopuhi Crater in April, 1968.

Rumex giganteus Ait., Hort. Kew, ed. 2, 2:323, 1811.

This was briefly diagnosed, with no mention of the color of the fruiting calyx, based on a *David Nelson* collection from the Sandwich Islands. Aiton also may have had cultivated greenhouse material, as he says "Introd. 1796 by Archibald Menzies, Esq."

There are two strikingly different color forms growing on the lava and ash beds of Hawaii and Maui, one with pale green, the other with bright, almost vermilion red, fruiting bracts. They are very difficult to distinguish in old dried material. Mr. John Lewis kindly examined the *Nelson* specimen for me in the British Museum. The slightly reddish brownish color that he described seems about that to which my green-bracted specimens have faded. Therefore, since no mention was made in the original description of any red color, I assume that *R. giganteus* f. *giganteus* is the green form (representative specimen: Hawaii: flats s.e. of Halemaumau in Kilauea Caldera, Hawaii National Park, 1,100 m., *Fosberg 41771* (US, Fo)).

Rumex giganteus f. *coccineus* Fosberg, n.f.

Fructificantes calyces coccinei.

Fruiting calyces scarlet.

Hawaii: south east of Kauunuoku, Hualalai Volcano, 1920 m., *Fosberg 41652* (US, type, Fo); 1 mi. west of Kulani Prison Camp on road to Mauna Loa, *Fosberg 42064* (US, Fo); Kilauea Caldera, *Lamoureux 2448* (HNP); Volcano Kilauea, *Forbes, Brigham and Thompson s.n.* (BISH); near Kilauea Volcano, Kalanilehua, *Rock 12989* (BISH); on lava beds back of Huehue and Puu Waawaa, *Rock 3598* (BISH); Keauhou No. 2, on Hualalai Road, Hualalai Volcano, 1450 m., *Fosberg 41642* (US, Fo).

Maui: Crater of Haleakala, *Forbes 1067.M* (BISH).

This form is found on open lava beds on Hawaii, and probably on Maui also, though I have not seen fresh material, growing near, if not with the green form. Several other specimens, not cited, probably belong here, but are difficult to place with certainty if the color of the fruiting bracts was not noted.

PAPAVERACEAE

It is interesting that most of the species of Papaveraceae reported from the Hawaiian Islands are known from the island of Maui on

the slopes of Haleakala. A key to the genera known from the islands, of which only *Argemone* is native, may be found in Degener's Flora Hawaiiensis. One or two notes may be added to his remarks. He reports *Bocconia frutescens* as cultivated. It seems to be at least precariously naturalized along the road south of Ulupalakua Ranch headquarters, Fosberg 42038 (US, Fo), along with *Hunnemannia fumariaefolia* which has become abundant and widespread in this region. *Eschscholtzia californica* Cham. is sparingly naturalized along the Kula Road north of Kula, Fosberg 48375 (US, Fo).

Lepidium bidentatum Mont., Nov. Act. Leop.-Carol. D. Akad. Naturf. 6:324-327, t. V a, 1778.

This species, originally described from a collection made by Sparmann on Capt. James Cook's second voyage, with no precise locality cited, is a very widespread plant of strand and lowland situations in many Pacific islands. I have seen it on almost every coral island I have visited in the south, central and eastern Pacific. It is apparently absent from Micronesia except for Wake Island, where it occurs in its typical form, though formerly confused with one of the Hawaiian varieties. Careful study of much material of *L. o-waihense* C. & S., from the Hawaiian Islands, fails to reveal any consistent difference from *L. bidentatum* except that the silicles are orbicular or sub-orbicular (one specimen, *Degener et al. 19,601* (NY) from Moku-leia Island, Oahu, has some tending to be longer than wide), while those of *L. bidentatum* are oval or even elliptic. This is a trivial difference, especially since there is a considerable variation in the length-width ratio in *L. bidentatum* from the South Pacific. In Kew Herbarium are two sheets collected in the Sandwich Islands by *Bidwill* (both stamped Herbarium Hookerianum), one of which has fruits orbicular, the other notably longer than wide. In all probability the latter was mislabeled and came from somewhere in the South Pacific.

I see no reason to maintain the Hawaiian plants hitherto called *L. o-waihense* C. & S. and *L. remyi* Drake as anything more than varieties, at best. *L. remyi* has linear entire leaves and suborbicular fruits. They are here accorded varietal rank.

Lepidium bidentatum var. **o-waihense** (C. & S.) Fosb. n. comb.
L. o-waihense C. & S., *Linnaea* 1:32, 1826.

The plant exhibits considerable variation in size and shape of

leaves, and especially in marginal tooting. The leaves vary from ovate to oblong or elliptic to obovate, or oblanceolate.

It has been found on at least the following Hawaiian Islands: Hawaii, Maui, Lanai, Molokai, Oahu, Laysan, Midway, Pearl and Hermes Reef, and Kure. There is no point in citing the abundant Hawaiian material examined, as all except the one Degener specimen mentioned above and the type of *L. remyi* seem to fall within a definite and definable range of variation.

The spelling of the varietal epithet, with the hyphen, follows that of Chamisso and Schlechtendal.

***Lepidium bidentatum* var. *remyi* (Drake) Fosberg, n. comb.**

L. remyi Drake, Ill. Fl. Ins. Mar. Pac. 6:106, 1890.

Leaves linear, 3-6 cm. long, 3-4 mm. wide, apex acute to blunt, margins entire; silicles suborbicular 3.5-4 mm. long, 3-3.5 mm. wide.

"Iles Sandwich, *J. Remy* 522" (P, type, 2 sheets).

This extreme form has not been re-collected, nor is its exact type locality known. It should be searched for to determine if it represents an actual population with these characters, or is merely a variation which occurred only once. It seems better to recognize it and direct attention to it than to dismiss it as merely another fluctuation in a variable species.

***Fragaria chiloensis* var. *sandwicensis* Deg. & Deg., Fl. Haw. 167:**

F.c.s. 3/3/61 (type *Degener* 12668).

Fragaria sandwicensis Decaisne, Jardin Fruit. Muséum (Paris) 9:49, 1862-75 (lectotype *Remy* 648 (P)).

Fragaria chiloensis ssp. *sandwicensis* Staudt, Can. Jour. Bot. 40:883, 1962.

Since the Degener variety was based on a different type and was published earlier, its name is the correct one and precludes the use of any combination under *F. chiloensis* based on *F. sandwicensis* Decne. (International Code Art. 24, Note). This was indicated by Darrow, in his book, *The Strawberry*, 1966. Neither Staudt nor the Degeners give very good reasons for distinguishing the Hawaiian plant, even varietally, but it certainly inhabits a different sort of environment, on the high Hawaiian volcanoes, from the sea-coast habitat of the American forms of the species.

Hawaii: Kaupulehu Road up Hualalai Volcano, 1,500 m., *Fosberg 42098* (Fo).

***Rubus ulmifolius* var. *inermis* (Willd.) Focke**

This cultivated blackberry has escaped and is growing in the forest behind the Hawaii Volcanoes National Park residential area, *Mueller-Dombois H-155* (UH). It should be eradicated while this is still possible.

***Cassia floribunda* Cav.**

The plant long known in Hawaii as *Cassia laevigata* Willd. is properly called *C. floribunda* Cav. according to a treatment of the Australian Cassias by Symon, *Trans. Roy. Soc. S. Austr.* **90**:86, 1966.

***Medicago polymorpha* L.**

The oldest name for the yellow-flowered bur-clover that has gone by the names *M. hispida* Gaertn. and *M. denticulata* Willd. is most probably *M. polymorpha* L., as it lies well within the range of variation commonly assigned to this widespread species.

Hawaii: Hawaii National Park *Fagerlund & Mitchell 409* (HNP); Mauna Loa, 6600', *Olson* in 1939 (HNP).

***Zanthoxylum semiarticulata* var. *sessilis* (Deg.) Fosb. n. comb.**

Fagara semiarticulata var. *sessilis* Deg., *Fl. Haw. Fam.* 179, F.S., 1/15/'36.

There seems no very good reason for splitting the genus *Zanthoxylum* L., at least on the lines that have been rather widely accepted. The Waianae form of *Z. semiarticulata* (s.e. of Palikea, Waianae Mts., Honouliuli, *Fosberg 10940* (US, Fo)) seems worthy of recognition, so if the Hawaiian species are retained in *Zanthoxylum*, a transfer is required.

The following transfer should also be made, though it is not at all certain that a population is represented by Degener's 5-foliolate collection (no. *10,083*).

Zanthoxylum semiarticulata f. laiense (Deg.) Fosb. n. comb.

Fagara semiarticulata f. laiense Deg., Fl. Haw. Fam. 179, F.S., 1/15/'36.

Abutilon grandifolium Sweet, Hort. Brit., ed. 1, 53, 1827 (1826).

Borssum Waalkes, *Blumea* 14:166, 1966, has pointed out conclusively enough that the widespread plant that has commonly been known as *Abutilon molle* (D.C.) Sweet is properly called *A. grandifolium* Sweet. It may be distinguished from other widespread *Abutilon* species by its large, deep orange flowers with the calyx lobes so wide that the edges protrude somewhat, rather than being smoothly valvate. Degener has referred this plant to *Abutilon mollissimum* (Cav.) Sweet, but Borssum Waalkes' examination of authentic material of *Sida mollissima* Cav. at Madrid shows that it is not referable to this species (*Blumea* loc. cit.).

Hypericum L.

This is an enormous genus, almost world-wide in its distribution, but without any native species in the Hawaiian Islands. Five species are known to have been introduced into the islands, one of which is a cultivated ornamental in cooler areas, as around Kilauea Volcano. There has been some confusion in their identities. The following key, it is hoped, will enable users to identify Hawaiian specimens. Past confusion will be discussed under the appropriate species. They are commonly called St.-John's-worts.

1. Flowers 4-5 cm. across, leaves broad, glaucous beneath, at least 3 cm. long.....X *Hypericum moserianum*
1. Flowers less than 2.5 cm. across, leaves less than 2 cm. long.
 2. Plants prostrate or reclining, branches weak but sometimes ascending*H. degeneri*
 2. Plants erect.
 3. Plant branched only at base, branches strictly erect, leaves strongly appressed upward, appearing linear because strongly revolute*H. gramineum*
 3. Plant with a principal erect main stem, this branched above, leaves spreading.
 4. Plants robust, bushy-branched above, flowers 1-2 cm. or more across, with many stamens.....*H. perforatum*
 4. Plants slender, with a number of strongly spreading branches above, flowers 6 mm. or less across, stamens few, under 12*H. mutilum*

X *Hypericum moserianum* André

A cultivated ornamental planted around Hawaii National Park, *Fagerlund and Mitchell 1086* (BISH).

***Hypericum degeneri* Fosb. n. sp.**

Herba depressa basi ramificans, caules dichasiales 3-4 dichotomi, caulibus et ramis terminantibus in flores singulos, sepala petalaeque subaequalia 4 mm. longa, styli 3, semina laevia oblonga.

Semiprostrate to prostrate herb, profusely branched from base and near base, stems very slender, terminating a few cm. above base in a shortly pedicellate flower, two branches from the uppermost leaf axils similar to main stem, 2-3-several internodes long before similarly terminating in a flower and 2 similar branches, this repeated 3-4 times, these stems and leaves not significantly different from those below the first flowers, whole plant to 10-20 or more cm. long; leaves 4-7 × 2-3 mm., narrowly oblong, rounded at apex, sessile, prominently but unevenly punctate, the dots not black; sepals broadly lanceolate, subacute, about 4 mm. long, obscurely punctate, petals pale yellow subequal with sepals, styles 3; fruit ellipsoid, seeds faintly showing through walls; seeds oblong, smooth, buff to tan, areolae in longitudinal rows, not prominent.

Hawaiian Is.: Hawaii: Laumaia, 6000-6500', *Neal and Hartt 809* (BISH, type); mauka of Kulani Prison, 5000', *Degener & Greenwell 21,827* (BISH); Mauna Loa, above Kulani, *Christ 3* (BISH); Hawaii Volcanoes National Park: Fern Jungle, *s. coll.* in 1931 (HNP); Napau Trail, *Fagerlund & Mitchell 14* (HNP, BISH); Kipuka Puaulu, *Lamoureux 2512* (HNP); Devastation area near Kilauea Iki, *Poinar* in 1960 (HNP); Kilauea 5500', *Hosaka 2519* (BISH); Kilauea, upper end of Bird Park Road, 1235 m., *Fosberg 45149* (US, BISH, Fo); Kilauea Crater, 4000' *Meebold* in 1932 (BISH).

This is a slender, weak, more or less prostrate mat-forming species that appeared around Kilauea apparently about 1930. It has since spread rapidly and become abundant in moderately wet areas.

It has generally been confused with *Hypericum japonicum* Thunb. in the past, but at times with *H. mutilum* L. In habit it somewhat resembles some material of *H. japonicum*. Its seeds are much like those of *H. mutilum*. I collected it many years ago at Kilauea and,

with great hesitation, referred it to *H. japonicum*, which is what I called it in the check list in the Hawaii National Park Atlas, 1966. This is presumably the plant illustrated by Degener and Adams, Fl. Haw. H.M., 12/31/63, as *H. mutilum*, but neither their description nor their illustration fit too well. Both seem to be based on a mixture of *H. mutilum* and *H. degeneri*, or at least to have characters of both.

It is doubtless introduced into Hawaii, but I have not matched it exactly with any species described elsewhere. It may be close to a plant from the New Guinea Highlands: Papua, Urunu, 1,900 m., *Brass* 4801 (NY), determined by van Steenis as *H. mutilum*, but this differs from *H. degeneri* in having the flowers in small terminal cymes and seeds slightly longitudinally ridged.

The new species seems closest to *H. humifusum* L. of Europe, to which I was tempted to refer it. However, the latter has the leaves prominently black-dotted along the margins but not otherwise punctate, the sepals somewhat black-dotted, a strong tendency to an alternate arrangement of the flowers on the upper internodes of the ultimate branches, and the seeds prominently reticulate. *H. degeneri* occasionally shows a slight tendency to suppression of one of a pair of upper branches, giving an alternate arrangement of the upper flowers.

***Hypericum gramineum* Forst. f.**

A small plant, branched at base, with long, slender erect branches, cymes 3-5-flowered, terminal on branches. A native of Australia and New Zealand, introduced many years ago but not common.

Hawaii: Kona, Kanehaha, *Forbes* 253.H (BISH), *Greenwell (Degeners)* 19254 (BISH); Kaanahaha, Central Plateau, Hawaii, common in water-holding sandy pockets, *Greenwell (Degeners)* 21381 (NY, BISH).

***Hypericum perforatum* L.**

Hawaii: Kaupulehu Road up Hualalai, 1,500 m., colony in grazed flat, Sept. 9, 1961, *Fosberg* 42087 (Fo).

The common St.-John's-wort is a weed, native perhaps in Europe, but probably introduced into Hawaii from the U.S. mainland, where it is a troublesome pest in many places. A rather coarse, yellow-flowered erect herb, growing from buried rhizomes.

Hypericum mutilum L.

An erect plant 20-40 cm. tall, firm, branched, leaves $20 \times 5-6$ cm., oblong-lanceolate, blunt, sessile, inflorescence cylindric, about $15 \text{ cm.} \times 7 \text{ cm.}$, capsule broadly-oblong, seeds lying horizontally in vertical rows, visible through walls, seed oblong, slightly curved, ends rounded, $0.25 \times 0.5 \text{ mm.}$, buff, almost smooth, very little relief, not very glossy, areolae arranged in longitudinal ladder-like rows wider than long.

A native of the North Temperate Zone, introduced at least earlier than 1945.

Hawaii: Glenwood, *Degener 2196* (NY); near old Volcano House, Hawaii Volcanoes National Park, *Fagerlund & Mitchell 1117* (HNP); Park Quarters no. 17, *Fagerlund and Mitchell 748* (HNP, BISH).

Tibouchina multiflora (Gardn.) Cogn.

This attractive species may be reported as in cultivation on the island of Hawaii, just above Kurtistown on Volcano Road, elevation about 200 m., *Fosberg 47741* (US). It is to be hoped that it does not become naturalized and too much at home, as have a number of other Melastomaceae introduced into Hawaii. The determination of this specimen was kindly made by Dr. John Wurdack.

Linociera ligustrina Sw.

This West Indian species is well naturalized in the pastures and thickets of the Ainahou Ranch, at and below the ranch buildings. It was collected first in 1965. *Mueller-Dombois H-210* (UH), *H-211* (UH); *Fosberg 48153* (US, BISH, Fo), *48151* (US, BISH, Fo).

The lower branches are short and twiggy with short ovate leaves, while the upper ones are long and sparsely branched with narrow lanceolate leaves. It was probably brought in either as a curiosity or accidentally with fruit-tree stock at the ranch. It is already showing the capacity of becoming a serious pasture weed, and will be difficult to get rid of.

Amsinckia intermedia F. & M.

A small yellow-flowered forget-me-not-like weed, collected at

Puu Ulaula Shelter in 1944 by *Fagerlund and Mitchell 903* (HNP, BISH). Marie Neal called it *A. douglasiana* DC., which it resembles only casually. After some difficulty it seems to key down to a small-flowered form of *A. intermedia*, a common California weed. The specimens lack mature fruit, so are very difficult to place with any certainty. The plant has evidently not been re-collected during recent work in the area.

***Jacobinia magnifica* (Nees) Lindau**

This was collected in deep shade in a *Cryptomeria* plantation at the junction of the Volcano Highway and 22 mile Road, Glenwood, *Mueller-Dombois H-145* (UH). Whether or not it was naturalized was not stated. Mr. Dieter Wasshausen kindly determined it for me.

***Hedyotis corymbosa* (L.) Lam**

This pantropic weed has finally turned up in Hawaii, growing but not common in 1965 on a rolled ash surface of a very recent *aa* lava flow, on Hawaii Island: Puna District, Hale Kamehina, 1.5 miles south of Kapoho Crater, *Fosberg 46025* (Fo). It is found in almost all tropical areas. It is a depressed herb with linear leaves and usually 3-flowered cymes of tiny pink flowers.

***Filago gallica* L.**

This slender erect everlasting, native of Europe, was found on an old lava flow in the Kau Desert, 2,400', in 1965, by *W. Egglar 160* (US). It was also picked up by a group of students in 1966, but the specimen is not available to me. It is apparently newly introduced, or at least has not been noticed earlier. It may well have come from California, where it is commonly naturalized.