Records of the Hawaii Biological Survey for 1999. Bishop Museum Occasional Papers 63: 9–16. (2000)

New Hawaiian Plant Records for 1999[1]

CLYDE T. IMADA, GEORGE W. STAPLES, & DERRAL R. HERBST (Hawai'i Biological Survey, Bishop Museum, 1525 Bernice St., Honolulu, Hawai'i 96817–2704, USA; email: cimada@bishopmuseum.org)

These previously unpublished Hawaiian plant records report new state and new island records, nomenclatural changes, and reidentifications of previously misnamed species in Hawai'i. These records supplement information published in Wagner *et al.* (1990, 1999) and in the *Records of the Hawaii Biological Survey* for 1994–1998 (Evenhuis & Miller, 1995, 1996, 1997, 1998; Evenhuis & Eldredge, 1999). All identifications were made by the authors except where noted in the acknowledgments, and all supporting voucher specimens are on deposit at BISH except as otherwise noted.

Agavaceae

Sansevieria trifasciata Prain **New naturalized record**

The snake plant or mother-in-law's tongue has been cultivated in Hawai'i for many decades. Recently, extensive roadside populations have been noticed at several localities around O'ahu, which have probably spread from ornamental plantings. *Sansevieria* has an extensive underground rhizome system and can develop sizeable clonal stands by this means. However, the following voucher specimen was made from plants that were also setting abundant fruits, which adds to the potential for dispersal and establishment away from planted populations; the fleshy, orange-red berries are potentially attractive to fruit-eating birds. Mother-in-law's tongue is quite tolerant of heat, drought, and poor soil and the population documented here is thriving under marginal conditions. The presence of *S. trifasciata* should be investigated on all islands and its reproductive status monitored.

Material examined: **O'AHU**: Ko'olauloa Distr., Sunset Beach area, hot, dry *mauka* side of Kamehameha Hwy in shade of dense thicket of disturbed vegetation just beside area where beach-goers park cars, 2 Oct 1999, *G. Staples & B. Pope 1187.*

Alismataceae

Sagittaria latifolia Willd. **New island record**

Previously documented from Kaua'i, O'ahu, and Maui (Wagner *et al.*, 1990: 1355), *Sagittaria latifolia* was collected as a weed in a flooded taro paddy. It represents the first naturalized collection of this species on Hawai'i.

Material examined: **HAWAI'I**: Hāmākua Dist., Waipi'o Valley, in wetland taro paddy with *Eleocharis radicans, Echinochloa crusgalli,* ca 80 ft, 19 Jun 1999, *C. Imada 99-28.*

Aquifoliaceae

Ilex cassine L. **New naturalized record**

Dahoon holly has been cultivated in Hawai'i since the early 1940s (or earlier) but has not previously been found naturalized in the state. The following 2 collections document its existence outside of cultivation on 2 islands. Collectors are encouraged to seek it on others. This holly fits the profile for bird-dispersed plants with its abundant, rather fleshy, bright red fruits containing multiple seeds contained in a hard pit.

Material examined: **O'AHU**: Whitmore Village, ca 0.5 mi above fence along dirt road, growing among eucalyptus and other exotics, about 25–30 plants seen, all size classes present, 16 Dec 1998, *M. Keir 1.* **HAWAI'I**: Puna Distr, land of 'Ōla'a, along Hwy 11 to Volcano, 17.4 miles from Hilo, 1850 ft, 16 Dec 1975, *D. Herbst & S. Ishikawa 5603;* along Hilo to Volcano Hwy at ca mile marker 18, small but growing naturalized population, 4 Apr 1985, *L. Stemmermann 6931.*

1. Contribution 2000-013 to the Hawaii Biological Survey.

Araceae

Alocasia macrorrhizos (L.) Schott **New island record**

'Ape is a ubiquitous large herb commonly seen growing streamside in mesic valleys, but previously documented as naturalized only on Kaua'i, O'ahu, Moloka'i, and Maui (Wagner *et al.*, 1990: 1356). This collection now documents its presence on Hawai'i. *Alocasia macrorrhizos* was a common understory herb in disturbed secondary forest on the floor of Waipi'o Valley.

Material examined: **HAWAI'I**: Hāmākua Dist., Waipi'o Valley, common along roadside leading into back of valley, ca 80 ft, 19 Jun 1999, *C. Imada 99-31*.

Xanthosoma roseum Schott **New island record**

Previously documented as naturalized from Kaua'i and O'ahu (Staples & Woolliams, 1997), *Xanthosoma* was collected along the dirt road leading into the back of Waipi'o Valley on the Big Island in the company of *Alocasia macrorrhizos*, with which it is often confused. As described by Staples & Woolliams (1997), *Xanthosoma* can be distinguished by its blade angled to the petiole, the apex usually pointing downward (vs blade and petiole forming a smooth arc, pointing upward); petiole and blade underside with a glaucous bloom, upper surface dull green (vs. parts glossy green, not at all glaucous); and open spathe cream flushed pink (vs. whitish to yellowish). Elsewhere in these *Records*, *X. roseum* is documented as naturalized on Maui (Oppenheimer & Bartlett, 2000).

Material examined: **HAWAI'I**: Hāmākua Dist., Waipi'o Valley, along roadside leading into back of valley, ca 80 ft, 19 Jun 1999, *C. Imada 99-32*.

Aristolochiaceae

Aristolochia littoralis Parodi **New island record**

Previously reported as naturalized only on O'ahu (Wagner *et al.*, 1990: 238), this represents the first weedy record of calico flower on Kaua'i.

Material examined: **KAUA'I**: Kapalawai, makai of Hwy 50, vine on large *Prosopis* stump in open *Prosopis/Pithecellobium* forest, 6 Mar 1999, *C. Imada, W. Char & C. Morden 99-5*.

Asteraceae

Emilia coccinea (Sims) G. Don **New island record**

This collection is the first record of *E. coccinea* on Kaua'i. It was previously recorded from O'ahu and Lāna'i (Wagner *et al.*, 1990: 312).

Material examined: **KAUA'I**: Waimea Canyon State Park, Iliau Nature Loop, trailside, ca 2940 ft, 7 Mar 1999, *C. Imada, W. Char & C. Morden 99-11*.

Sphagneticola trilobata (L.) Pruski **New island record**

Syn. *Wedelia trilobata* (L.) Hitchc.

This widely cultivated ground cover had previously been documented as naturalized only on Kaua'i and O'ahu (Wagner *et al.*, 1990: 373). This collection represents the first naturalized record of wedelia on Hawai'i. The species was long known as *Wedelia trilobata* (Wagner *et al.*, 1990: 373) until it was recently transferred to *Sphagneticola* (Pruski, 1996).

Material examined: **HAWAI'I**: Hāmākua Dist., Waipi'o Valley, ground cover on bank in disturbed forest of *Syzygium jambos*, ca 120 ft, 19 Jun 1999, *C. Imada & T. Cummings 99-14*.

Bignoniaceae

Macfadyena unguis-cati (L.) A.H. Gentry **New island record**

Previously documented from Kaua'i, O'ahu, and Lāna'i (Wagner *et al.*, 1990: 388), this collection documents a naturalized population of cat's-claw climber on Hawai'i. It

formed locally dense mats on the ground and twined around trees in disturbed secondary forest with a canopy of *Mangifera indica, Syzygium jambos,* and *Ficus retusa.* Elsewhere in these *Records, M. unguis-cati* is documented as naturalized on Maui (Oppenheimer & Bartlett, 2000).

Material examined: HAWAI'I: North Kohala Dist, Pali Akamoa Gulch, Bond Historical District, ca 560 ft, 1 Sep 1999, *C. Imada & K. Arakaki 99-46.*

Chenopodiaceae

Enchylaena tomentosa R. Br. var. ***tomentosa*** **New state record**

Enchylaena is a genus of 2 species endemic to Australia; it is naturalized in New Caledonia and now Hawai'i, where it presently is known only from the Kanahā Pond area of central Maui. *Enchylaena tomentosa* is a small shrub up to about 1 m tall. Its branches are slender, striate, and somewhat lax; the leaves alternate, simple, entire, sessile, slender, somewhat terete, succulent, 7–20 mm long; and both the leaves and young stems densely woolly with short curly hairs. The flowers are solitary, axillary, sessile, bisexual, with a cup-shaped, 5-lobed perianth, the perianth tube glabrous, its lobes glabrous or pubescent; and the fruiting perianth is depressed-globular, about 5 mm dia, with a flat or sunken apex, green, yellow or red, drying dark brown or black. In Australia, the common name for this plant is ruby or barrier saltbush (Wilson, 1984: 213).

Material examined. MAUI: Kahului, along roadblock near the airport, 1 Apr 1985, *R. Hobdy 2322,* central Maui, near Kahului airport, growing on hot, dry road on a rocky outcrop, 24 Feb 1986, *R. Hobdy 2524;* Kanahā Pond Wildlife Sanctuary, eastern edge of central pond, N 20° 53', W 156° 26', 2 m, 4 Feb 1999, *C. Annable 3893.*

Convolvulaceae

Ipomoea aquatica Forssk. **New island record**

Naturalized populations of swamp cabbage have previously been documented from O'ahu and Maui (Wagner *et al.,* 1990: 555). On the Big Island, it was collected in a fallow wetland taro paddy in Waipi'o Valley, where it was growing with *Nasturtium sarmentosum* and *Polygonum punctatum.*

Material examined: HAWAI'I: Hāmākua Dist., Waipi'o Valley, in wetland taro paddy, ca 80 ft, 19 Jun 1999, *C. Imada 99-27.*

Merremia umbellata (L.) Hallier f. **New naturalized record**

Noted in the *Manual* (Wagner *et al.,* 1990: 563) this species now appears to be fully naturalized on windward O'ahu.

Material examined: O'AHU: Kahalu'u, S. Yogi farm, growing in banana fields and infesting trees and shrubbery, 11 Jan 1999, *R. Heu & R. Hamasaki s.n.* (BISH 658030; duplicates FAU, NY, US).

Cyperaceae

Cyperus involucratus Roxb. **New island record**

Previously documented from Midway, Kaua'i, O'ahu, and Maui (Wagner *et al.,* 1990: 1395; Hughes, 1995; Herbarium Pacificum Staff, 1999), *'ahu'awa haole* was collected in Waipi'o Valley from a large stand growing roadside in marshy land. This represents a new naturalized record for the Big Island. This species was long known as *C. alternifolius;* Strong & Wagner (1997: 41) explain the reason for the nomenclatural change.

Material examined: HAWAI'I: Hāmākua Dist., Waipi'o Valley, alongside road in lower part of valley, in marshy land with *Diplazium esculentum,* ca 40 ft, 18 Jun 1999, *C. Imada 99-26.*

Eleocharis radicans (Poir.) Kunth **New island record**

Previously documented from Kaua'i, O'ahu, and Maui (Wagner *et al.*, 1990: 1403), *E. radicans* has now been documented from Waipi'o Valley on Hawai'i, where it formed dense mats in flooded taro paddies along with *Echinochloa crusgalli*.

Material examined: **HAWAI'I**: Hāmākua Dist, Waipi'o Valley, in wetland taro paddy, ca 80 ft, 19 Jun 1999, *C. Imada 99-30*.

Fimbristylis miliacea (L.) Vahl **New island record**

The presence of this species in the Hawaiian Islands was only recently recognized (Strong & Wagner, 1997: 25). In addition to Kaua'i, *F. miliacea* is now documented from Hawai'i.

Material examined: **HAWAI'I**: Hāmākua Dist., Waipi'o Valley, on wet bank of wetland taro paddy, ca 80 ft, 19 Jun 1999, *C. Imada 99-29*.

Fabaceae

Desmodium intortum (Mill.) Urb. **Range extension**

Previously documented from O'ahu and Hawai'i (Wagner *et al.*, 1990: 667; Herbarium Pacificum Staff, 1998: 9), on O'ahu *D. intortum* has only been documented from Ha'ikū Valley in the windward Ko'olau Mountains. This collection from the Wai'anae Range extends its O'ahu range.

Material examined: **O'AHU**: Wai'anae Range, N rim of Mākua Valley, trailside in open sunny flat area, with *Melinis, Bidens alba*, planted *Pinus, Pteridium*, ca 1800 ft, 28 Feb 1999, *C. Imada 99-3*.

Prosopis juliflora (Sw.) DC. **New island record**

Previously documented as naturalized only on O'ahu (Wagner *et al.*, 1990: 692), this represents the first naturalized collection of this stout-thorned algaroba on Kaua'i. Plants of various ages were scattered along the beach shoreline at Kapalawai above the high tide mark.

Material examined: **KAUA'I**: Kapalawai, makai of Hwy 50, spreading 15 ft tall tree on beach above high tide mark, 6 Mar 1999, *C. Imada, W. Char & C. Morden 99-4*.

Lauraceae

Cinnamomum verum J. Presl **New island record**

Naturalized collections of the cinnamon tree have been documented from Kaua'i, O'ahu, and Maui (Wagner *et al.*, 1990: 846). At the Bond Estate in North Kohala on the Big Island, volunteers have apparently spread from planted populations and are now scattered throughout the alien secondary forest there.

Material examined: **HAWAI'I**: North Kohala Dist., Pali Akamoa Gulch, Bond Historical District, common small tree in secondary forest of *Mangifera, Syzygium* spp., *Ficus, Terminalia*, ca 560 ft, 1 Sep 1999, *C. Imada & A. Allison 99-47*.

Lemnaceae

Spirodela polyrhiza (L.) Schleid. **New island record**

This free-floating plant has previously been documented from O'ahu, Maui, and Hawai'i (Wagner *et al.*, 1990: 1458; Wagner *et al.*, 1997: 59). On Kaua'i, greater duckweed was collected on the pond surface of Kapalawai Pond, where it was growing with *Lemna aequinoctialis* and *Eichhornia crassipes*. The pond was choked with vegetation, including *Schoenoplectus californicus* and *Cyperus involucratus*.

Material examined: **KAUA'I**: Kapalawai, makai of Hwy 50, floating on margin of Kapalawai Pond, 6 Mar 1999, *C. Imada, W. Char & C. Morden 99-7*.

Liliaceae

Asparagus plumosus J.G. Baker **Name change; New island record**

Misapplied: *Asparagus setaceus sensu* St. John (1973: 81), Lorence *et al.* (1995: 40), non (Kunth) Jessop.

There is a pernicious confusion in the horticultural application of 2 names for South African species of *Asparagus.* A widely accepted taxonomic revision of the South African species (Jessop, 1966) recognized 1 species, *A. setaceus* (Kunth) Jessop [synonym *A. plumosus* J.G. Baker]. Most horticultural reference works have followed this classification. However, recently published work revealed that 2 species are involved (Fellingham & Meyer, 1995), which are distinguished by the arrangement of their cladodes: all in 1 plane *(A. plumosus)* or radiating in many planes *(A. setaceus)* (H. Glen, pers. comm.). If this classification is followed, then the plant widespread in cultivation is to be called *A. plumosus;* the genuine *A. setaceus* (Kunth) Jessop is not in cultivation.

Climbing asparagus fern has been cultivated for decades in Hawai'i and has been previously recorded as naturalized on Kaua'i (Lorence *et al.,* 1995: 40). The following collections document the naturalized status of *A. plumosus* on O'ahu; elsewhere in these *Records* it is documented as naturalized on Maui (Oppenheimer & Bartlett, 2000). The plant's rampant climbing habit, thorny stems, enlarged storage roots, and small black, bird-dispersed berries combine to make this a particularly difficult weed to eradicate. Now that it has begun to spread outside of cultivation, every effort should be made to control it.

Material examined: **O'AHU**: Wahiawa area, Schofield Barracks, across highway from McNair Gate, naturalized, scattered over a few acres with *Eucalyptus, Panicum maximum,* 19 Mar 1999, *F. Kraus s.n.* (BISH 655272); above He'eia State Park, in heavily disturbed secondary vegetation along hillside, 20 Dec 1998,*G. Staples, S. Lum & K. Ahsing 1171.*

Melastomataceae

Arthrostemma **Spelling correction**

The spelling of the genus name (as *Arthrostema*) is incorrect in the *Manual* (Wagner *et al.,* 1990: 905) and although the author for the treatment of the Melastomataceae, Frank Almeda, requested that the spelling be corrected, this was apparently missed in the page proofs. Since a number of users of the *Manual* have questioned which spelling is correct, we include this note here to clarify the matter.

Ochnaceae

Ochna thomasiana Engl. & Gilg **New naturalized records**

As recently as 1998 (Herbarium Pacificum Staff, 1998: 12), what had long been called *Ochna kirkii* was reidentified, and its presence as a naturalized species was suggested. Field collections that document its establishment as a *bona fide* weedy element in the Hawaiian flora are now in hand. On Windward O'ahu, *O. thomasiana* is widespread and abundant as an understory shrub in disturbed mesic forests. It is surely much more widespread than the following collections indicate. It will very likely be found on the neighbor islands as well.

Material examined: **O'AHU**: Ko'olaupoko Distr., Kāne'ohe, on ridge not far from Pohai Nani retirement complex, 930 ft, 19 Dec 1998, *B. Waters s.n.* (BISH 653561); above He'eia State Park, disturbed secondary vegetation, 20 Dec 1998, *G. Staples, S. Lum & K. Ahsing 1170;* Kailua, Maunawili Valley, weedy disturbed forest along an unpaved fire access road that enters Maunawili Loop adjacent to #1022, 28 Nov 1999, *G. Staples 1193.* Honolulu Distr., Kuli'ou'ou Valley, in small gully heading up-slope, ca 50 yards from end of Papahehi Pl., 24 Jan 1999, *B. Waters s.n.* (BISH 655126).

Poaceae

Andropogon virginicus L. **New island record**

Previously documented from O'ahu, Moloka'i, Lāna'i, Maui, and Hawai'i (Wagner *et al.*, 1990: 1497; Hughes, 1995: 8; Herbarium Pacificum Staff, 1999: 7; Oppenheimer *et al.* 1999: 9), broomsedge was collected at Iliau Nature Loop on Kaua'i in a dry shrubland of *Wilkesia, Dodonaea, Styphelia,* and *Pteridium.*

Material examined: KAUA'I: Waimea Canyon State Park, Iliau Nature Loop, ca 2980 ft, 7 Mar 1999, *C. Imada, W. Char & C. Morden 99-10.*

Leptochloa fusca (L.) Kunth subsp. ***uninervia*** (J. Presl) N. Snow **Taxonomic change**

Syn. *Leptochloa uninervia* (J. Presl) Hitchc. & Chase

Research leading to a recent monograph of the genus *Leptochloa* (Snow 1997) supports taxonomic changes associated with *L. fusca* (L.) P. Beauv., a highly variable taxon common and widespread throughout warm-temperate and tropical areas of the world. Because morphological forms of *L. fusca* appear regionally distinct, they often have been given formal recognition; however, multivariate statistical studies of population samples conducted by Snow indicates a general tendency of the populations to segregate into 4 entities. Snow (1998) has recognized these entities at the subspecific level, including subsp. *uninervia,* a grass naturalized in Hawai'i. We here follow Snow's treatment of the genus, relegating *L. uninervia* (J. Presl) Hitchc. & Chase (O'Connor, 1990: 1558) to synonymy of this taxon.

Recently the Bishop Museum received duplicates of specimens collected in the Hawaiian Islands by Ezechiel Jules Rémy as part of an exchange program with the Museum National d'Histoire Naturelle, Paris. Rémy was a French naturalist and ethnologist who visited Hawai'i twice during an extended trip around the world, 1851–1863. His Hawaiian specimens are dated 1851–1855; specific dates are unknown for most of his collections. We do know that he was on the island of Hawai'i, traveling from Hilo to the summit of Mauna Loa from 13–23 June 1853; on Moloka'i from 24–30 June 1854; and on Maui starting 1 July 1854. Of the 27 Rémy specimens received in this exchange, 5 (all grasses) contribute additional information on the Hawaiian flora. These are listed below.

Agrostis avenacea J.F. Gmelin **New island record**

O'Connor (1990: 1492) stated that this indigenous grass was documented from all the main islands except Ni'ihau and Kaho'olawe. The following Rémy collection documents it from the latter island.

Material examined. KAHO'OLAWE: [without specific locality and date], *J. Rémy 74.*

Briza minor L. **Earlier date of introduction**

Previously, the earliest known documentation of the species in Hawai'i was based upon a collection made by Mann and Brigham on Hawai'i Island in 1864–65 (O'Connor, 1990: 1505). We now know that it had been collected on that island by Rémy at an earlier date.

Material examined. HAWAI'I: [without specific locality and date], *J. Rémy 85.*

Chloris virgata Sw. **Earlier date of introduction**

O'Connor (1990: 1516) reported that the earliest know collection of *Chloris virgata* in Hawai'i was made by Munro in 1903 on the island of Moloka'i. The following specimen documents that this grass was naturalized on O'ahu some 50 years earlier. Herbst & Clayton (1998: 21) recently reported this species as new to the island of O'ahu, as they

were not aware of any specimens previously collected from the island.

Material examined. **O'AHU:** [without specific locality and date], *J. Rémy 76.*

Ischaemum byrone (Trin.) Hitchc. **New island record**

According to O'Connor (1990: 1557), this endemic species of grass had previously been documented from the islands of Moloka'i, Maui, and Hawai'i; it was later reported by Lorence *et al.* (1995: 46) from Kaua'i. The Rémy collection appearing below documents the species from O'ahu. *Ischaemum byrone* has been listed as an endangered species by the U.S. Fish and Wildlife Service (Mehrhoff, 1994).

Material examined. **O'AHU:** [without specific locality and date], *J. Rémy 110.*

Setaria parviflora (Poir.) Kerguelen **Earlier date of introduction**

As reported by O'Connor (as *S. gracilis*, a synonym) (1990: 1592), the earliest known collection of *Setaria parviflora* in Hawai'i was that made by Heller on Kaua'i in 1895. Based on the specimen cited below, it is now known that Rémy collected the species on that island sometime between 1851 and 1855.

Material examined. **KAUA'I:** [without specific locality and date], *J. Rémy 106.*

Rubiaceae

Diodia apiculata (Willd. ex Roem. & J.A. Schultes) K. Schum. **New state record**

Syn. *Diodia rigida* (Willd. ex Roem. & J.A. Schultes) Cham. & Schltdl.

This specimen, long filed as an unidentified Rubiaceae, was recognized by Charlotte M. Taylor as *D. rigida* during a visit to BISH in 1999. According to the nomenclature adopted for the *Flora of North America* (Kartesz, 1994) this name is a synonym of *D. apiculata*. It is the first record for this weedy species in the Hawaiian Islands.

Material examined: **O'AHU:** Ko'olau Mts, Pūpūkea-Paumalu, Ko'olauloa, 400 ft, 6 Dec 1987, *K. Nagata & W. Takeuchi 3748.*

Solanaceae

Physalis angulata L. **New island record**

Known to be a naturalized weed on Kaua'i (Wagner *et al.*, 1990: 1265), this is the first record of the species on O'ahu.

Material examined: **O'AHU:** Waimānalo, weedy 2–3 ft tall herb in fields at the Waimānalo Experiment Station, 14 Jan 1999, *R. Heu & W. Nagamine s.n.* (BISH 658032).

Acknowledgments

We thank the collectors of the cited specimens and our many BISH volunteers for assisting us in making them available for study. The authors are grateful to C.M. Taylor (MO) for determining the *Diodia* voucher specimen. Hugh Glen (PRE) clarified the status of *Asparagus* in southern Africa. Bishop Museum acknowledges the John D. and Catherine T. McArthur Foundation for its support of the Hawaii Biological Survey.

Literature Cited

Evenhuis, N.L. & S.E. Miller, eds. 1995. Records of the Hawaii Biological Survey for 1994. Parts 1 & 2. *Bishop Mus. Occ. Pap.* **41, 42.**

———., **eds.** 1996. Records of the Hawaii Biological Survey for 1995. Parts 1 & 2. *Bishop Mus. Occ. Pap.* **45, 46.**

———., **eds.** 1997. Records of the Hawaii Biological Survey for 1996. Parts 1 & 2. *Bishop Mus. Occ. Pap.* **48, 49.**

———., eds. 1998. Records of the Hawaii Biological Survey for 1997. Parts 1 & 2. *Bishop Mus. Occ. Pap.* 55, 56.

Evenhuis, N.L. & L.G. Eldredge, eds. 1999. Records of the Hawaii Biological Survey for 1998. Parts 1 & 2. *Bishop Mus. Occ. Pap.* 58, 59.

Fellingham, A.C. & N.L. Meyer. 1995. New combinations and a complete list of *Asparagus* species in southern Africa. *Bothalia* 25: 205–09.

Herbarium Pacificum Staff. 1998. New Hawaiian plant records for 1997. *Bishop Mus. Occ. Pap.* 56: 8–15.

———. 1999. New Hawaiian plant records for 1998. *Bishop Mus. Occas. Pap.* 58: 3–11.

Herbst, D.R. & W.D. Clayton. 1998. Notes on the grasses of Hawai'i: new records, corrections, and name changes. *Bishop Mus. Occas. Pap.* 55: 17–38.

Hughes, G.D. 1995. New Hawaiian plant records. II. *Bishop Mus. Occas. Pap.* 42: 1–10.

Jessop, J.P. 1966. The genus *Asparagus* in southern Africa. *Bothalia* 9: 31–96.

Kartesz, J.T. 1994. *A synonymized checklist of the vascular flora of the United States, Canada, and Greenland.* Second edition. 2 vols. Timber Press, Portland.

Lorence, D.H., T. Flynn & W.L. Wagner. 1995. Contributions to the flora of Hawai'i. III. *Bishop Mus. Occ. Pap.* 41: 19–58.

Mehrhoff, L.A. 1994. Endangered and threatened wildlife and plants; determination of endangered or threatened status for 21 plants from the island of Hawai'i, State of Hawai'i. *Federal Register* 59(43): 10305–10323.

O'Connor, P. 1990. Poaceae, p. 1481–1604. *In*: Wagner, W.L., D.R. Herbst & S.H. Sohmer, Manual of the flowering plants of Hawai'i. University of Hawaii Press and Bishop Museum Press, Honolulu. 1,853 p.

Oppenheimer, H.L. & R.T. Bartlett. 2000. New plant records from Maui, O'ahu, and Hawai'i Islands. *Bishop Mus. Occas. Pap.* 64: 1–10.

———., **J.S. Meidell & R.T. Bartlett.** 1999. New plant records for Maui and Moloka'i. *Bishop Mus. Occas. Pap.* 58: 7–11.

Pruski, J.F. 1996. Compositae of the Guayana Highland–IX. *Tubercolocarpus* gen. nov. and some other Ecliptinae (Heliantheae). *Novon* 6: 404–18.

St. John, H. 1973. List and summary of the flowering plants in the Hawaiian Islands. *Pac. Trop. Bot. Gard. Mem.* 1, 519 p.

Snow, N. 1997. Phylogeny and systematics of *Leptochloa* P. Beauv. *sensu lato* (Poaceae, Chloridoideae). Ph.D. dissertation, Washington University, St. Loui.

———. 1998. Nomenclatural changes in *Leptochloa* P. Beauvois *sensu lato* (Poaceae, Chloridoideae). *Novon* 8: 77–80.

Staples, G.W. & K.R. Woolliams. 1997. An overlooked naturalized aroid for the Hawaiian flora. *Bishop Mus. Occas. Pap.* 49: 13–16.

Strong, M.T. & W.L. Wagner. 1997. New and noteworthy Cyperaceae from the Hawaiian Islands. *Bishop Mus. Occas. Pap.* 48: 37–50.

Wagner, W.L,, D.R. Herbst & S.H. Sohmer. 1990. *Manual of the flowering plants of Hawai'i.* 2 vols. Univ. of Hawai'i Press and Bishop Museum Press, Honolulu. 1,853 p.

———. 1999. *Manual of the flowering plants of Hawai'i.* Revised edition. 2 vols. Univ. of Hawai'i Press and Bishop Museum Press, Honolulu.

———., **R.K. Shannon, & D.R. Herbst.** 1997. Contributions to the flora of Hawai'i. VI. *Bishop Mus. Occas. Pap.* 48: 51–65.

Wilson, P.G. 1984. Chenopodiaceae, p. 81–317. *In*: George, A.S., ed., *Flora of Australia.* Vol. 4. Phytolaccaceae to Chenopodiaceae, Australian Government Publishing Service, Canberra. 354 p.