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New plant records from the Hawaiian Archipelago

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The following contributions include 19 new plant records for the islands of Kure Atoll (1), Midway Atoll (7), Lāna‘i (9), Kaho‘olawe (1), and Maui (1). The records are comprised of one new state record and 18 new island records. All but one of the records are non-natives. Images of most of the material examined can be seen at <www.hear.org/starr>. Voucher specimens are housed in the Bishop Museum's *Herbarium Pacificum* (BISH), Honolulu, Hawai‘i.

Acanthaceae

Ruellia brevifolia (Pohl) C. Ezcurra **New island record**

Ruellia brevifolia (ruellia) is occasionally cultivated as an ornamental plant and is reported as naturalized on the islands of Kaua‘i, O‘ahu, Moloka‘i, and Maui (Wagner *et al.* 1999; Oppenheimer 2003). It is now also known from Lāna‘i, where it was common on the margins of Lāna‘i City. This collection represents a new island record for Lāna‘i.

Material examined. **LĀNA‘I**: Lāna‘i City, Queens St, on side of road, in association with *Eugenia uniflora* and *Lantana montevidensis*, 488 m (1600 ft), 3 Apr 2007, *Starr & Starr 070403-03*.

Thunbergia alata Bojer ex Sims **New island record**

Thunbergia alata (black-eyed Susan vine) is commonly cultivated and naturalized in tropical areas throughout the world. First collected in the Hawaiian Islands in 1864 and now documented as sparingly naturalized on the islands of Kaua‘i, Moloka‘i, Maui, and Hawai‘i (Wagner *et al.* 1999; Oppenheimer 2003), this collection represents a new island record for Lāna‘i.

Material examined. **LĀNA‘I**: Lāna‘i City, Queens St, on side of road, in association with *Olea europaea* subsp. *cuspidata* and *Lantana montevidensis*, 488 m (1600 ft), 3 Apr 2007, *Starr & Starr 070403-02*.

Thunbergia fragrans Roxb. **New island record**

Thunbergia fragrans (sweet clock vine) is an agricultural weed that was first collected on Kaua‘i in 1916 and is now known to be naturalized on Kaua‘i, O‘ahu, Moloka‘i, Maui, and Hawai‘i (Wagner *et al.* 1999; Starr *et al.* 2006). On Lāna‘i, this species was spreading in residential and scrub areas of Lāna‘i City. This collection represents a new island record for Lāna‘i.

Material examined. **LĀNA‘I**: Lāna‘i City, Queens St, on side of road, in association with *Clusia rosea* and *Sphaeropteris cooperi*, 488 m (1600 ft), 3 Apr 2007, *Starr & Starr 070403-02*.

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Asteraceae

Centratherum punctatum Hassl. subsp. ***punctatum*** **New island record**

Centratherum punctatum subsp. *punctatum* (centratherum) was previously reported from Kauaʻi, Molokaʻi, Maui, and Hawaiʻi (Lorence *et al.* 1995; Oppenheimer 2003; Starr *et al.* 2004; Starr *et al.* 2006). This purple-flowered plant grown as an ornamental is now also known from Lānaʻi, where it was collected in Kapano Gulch, just outside of Lānaʻi City.

Material examined. **LĀNAʻI**: Kapano Gulch, on side of dirt road, in association with *Pittosporum viridiflorum* and *Falcataria moluccana*, 450 m (1476 ft), 2 Apr 2007, *Starr & Starr 070402-07*.

Delairea odorata Lem. **New island record**

Delairea odorata (Cape ivy) was previously known to be naturalized on Maui and Hawaiʻi (Wagner *et al.* 1999). On Lānaʻi, this vine was found sprawling about a wooded lot on the corner of Ninth and Queens St, Lānaʻi City. This collection represents a new island record for Lānaʻi.

Material examined. **LĀNAʻI**: Lānaʻi City, corner of Ninth St and Queens St, sprawling along road and up in trees, growing with *Ruellia brevifolia*, *Oxalis corniculata*, and *Araucaria columnaris*, 545 m (1787 ft), 4 Apr 2007, *Starr & Starr 070404-01*.

Dyssodia tenuiloba (DC.) B.L. Rob. **New island record**

Dyssodia tenuiloba (dog fennel, lemon drop), a yellow-flowered bedding plant, was first reported in Hawaiʻi as naturalized in 2002 and is now known from the islands of Kauaʻi, Oʻahu, Molokaʻi, Maui, and Kahoʻolawe (Starr *et al.* 2002; Starr *et al.* 2006; Lorence & Flynn 2006). It is here reported as a new island record for Lānaʻi, where it was cultivated in a few yards of Lānaʻi City and locally common and naturalized near the dump along Kaumālapaʻu Rd, where it was collected. Naturalized populations were also observed near the cemetary above Kōʻele and along Keōmuku Rd.

Material examined. **LĀNAʻI**: Kaumālapaʻu Rd, near dump, locally common and naturalized in area of dry scrub in association with *Cenchrus ciliaris* and *Emilia fosbergii*, 262 m (860 ft), 2 Apr 2007, *Starr & Starr 070402-01*.

Flaveria trinervia (Spreng.) C. Mohr **New island record**

Flaveria trinervia (flaveria) was previously reported from Kauaʻi, Oʻahu, Maui, and Kahoʻolawe (Lorence *et al.* 1995; Herbst & Wagner 1996; Wagner *et al.* 1999; Oppenheimer 2003). In 2001, it was also observed and collected on Kure Atoll and is here reported as a new island record.

Material examined. **KURE ATOLL**: Common on the runway, near quarters, and the southwest tip of the island, along with *Ciclospermum leptophyllum, Lobularia maritima*, *Scaevola taccada*, and *Verbesina encelioides*, 3 m (10 ft), 22 May 2001, *Starr & Starr 010522-02.*

Perityle emoryi Torr. **New state record**

Perityle emoryi (rock daisy) is native to the southwestern states of California, Nevada, Utah, and Arizona, and to northern Chile, South America (PLANTS 2008; Belov 2008). In California, rock daisy occurs mostly in desert areas but may also occasionally be found in coastal sage scrub in southern counties (Charters 2008). It is commonly found in crevices of cliffs and rocky dry slopes to 915 m (3000 ft). In Chile, it occurs in similar sites, including coastal areas and mountains up to 1830 m (6000 ft) with an arid climate

characterized by drought for many months of the year and occasional morning frost (Belov 2008). This winter annual can be distinguished by the following characteristics: "Stout, somewhat brittle-branched, glandular-pubescent and sparsely hirsute annual growing to about 16 in tall. The leaves are alternate, to 4 in long, broadly cordate to ovate, petioled, and coarsely-toothed to palmately lobed with the lobes again laciniate-toothed. The flowering heads are radiate and solitary on the ends of short stems. The ray flowers are white and fairly inconspicuous, and are 10–13 in number. The disk flowers are yellow. The hemispheric to bell-shaped involucre is roughly 1/4 in high and has two series of thin-margined, glandular-pubescent phyllaries with ciliate tips. There is a pappus which consists of a crown of very small scales and a single slender bristle or awn. This latter may be absent. Both the ray flowers and the disk flowers have achenes, those of the rays are puberulent on their faces while those of the disk flowers are glabrous." (Charters 2008). In Hawai'i, this plant was recently collected from the island of Kaho'olawe. It was first observed during the UXO cleanup in a gravel pile near the K1 road at Honokanai'a. From there, it quickly spread locally to rocky areas nearby. Also collected by Ken Wood in 2006 from "LZ Squid." These collections represent a new state record for Hawai'i from the island of Kaho'olawe.

Material examined. **KAHO'OLAWE**: Honokanai'a on side of road, just outside of camp, growing in association with *Cenchrus ciliaris* and *Prosopis pallida*, 5 m (15 ft), 29 Apr 2003, *Starr, Starr & Higashino 030429-01;* Honokanai'a, on dirt bank on south side of beach, spreading locally across road and upslope, in association with *Verbesina encelioides*, 6 m (20 ft), 16 Feb 2004, *Starr, Starr & Higashino 040216-02;* LZ Squid, site for future nursery, construction of building in progress, *Cenchrus ciliaris* grassland with scattered trees of *Prosopis pallida*, herb, 25–35 cm tall with many stems, several plants scattered around construction area, 15 m (50 ft), 14 Jun 2006, *K.R. Wood 11919*.

Cucurbitaceae

Coccinia grandis (L.) Voigt **New island record**

Coccinia grandis (ivy gourd), a sprawling plant occasionally grown for food even though it is a Hawai'i state noxious weed, is naturalized on O'ahu, Lāna'i, Maui, and Hawai'i (Wagner *et al.* 1999; Starr *et al.* 1999; Oppenheimer & Bartlett 2000; Oppenheimer 2007). On Midway Atoll, ivy gourd was first observed in 1999 from a single garden site. Seeds had been brought in from Thailand, and it was being grown as an edible vegetable. Shortly after its discovery during a botanical survey, the U.S. Fish and Wildlife Service (FWS) began an eradication campaign. By 2001, there was no sign of the vine, and the eradication was deemed a success. During a more recent survey in 2008, three separate locations of ivy gourd were observed, and workers revealed that it had been brought in again as seeds from both Thailand and Honolulu. It was being grown in the same garden and other garden locations nearby. While it had started to spread into adjacent lawn areas and numerous fruits and seedlings were observed, no other outlier locations were found. With mynah birds (*Acridotheres tristis*) present on the island, this species could potentially cover much of the island and become a nuisance for native plants and wildlife. Control efforts are again underway by FWS to eradicate all known populations. Persistent diligence and strict prevention rules will be needed to rid the atoll of this aggressive vine and keep it from being re-introduced. This collection represents a new island record for Midway Atoll.

Material examined. **MIDWAY ATOLL**: Sand Island, 4208 Commodore Ave, large vine on fence, spreading into lawn, seedlings observed, growing with other vegetables such as *Solanum torvum*, *Plectranthus amboinicus*, and *Ocimum basilicum*, 3 m (10 ft), 1 Jun 2008, *Starr & Starr 080601-01*.

Fabaceae

Caesalpinia bonduc (L.) Roxb. **New island record**

Caesalpinia bonduc (*kakalaioa*, *hihikolo*, gray knickers) was previously known in Hawai‘i from Laysan, Ni’ihau, Kaua‘i, O‘ahu, Moloka‘i, East Maui, and Hawai‘i (Wagner *et al.* 1999). This indigenous species has seeds that can float long distances in seawater for long periods of time and is established on nearly every tropical shore worldwide (Francis n.d.). A single specimen was observed on Midway Atoll during a botanical survey in 2008. The plant appeared to be somewhat of a recent arrival as it was not yet fertile, did not appear to have been planted, and was not known from previous surveys. We speculated that the plant could have arrived from a seabird picking up a seed floating in the ocean, then depositing it on the atoll. This collection represent a new island record for Midway Atoll.

Material examined. **MIDWAY ATOLL**: Sand Island, Roosevelt Ave, 1 large sprawling vine, ca 5 x 5 m, covered in spines, no fertile material, with stipules, near side of old road with surrounding weeds including *Lantana camara*, *Abutilon grandifolium*, and *Leucaena leucocephala*, 3 m (10 ft), 10 Jun 2008, *Starr & Starr 080610-13*.

Calliandra houstoniana (Mill.) Standl.
var. ***calothyrsus*** (Meisn.) Barneby **New island record**

Calliandra houstoniana var. *calothyrsus* was reported as a new naturalized record by Imada *et al.* (2007) from the island of Lāna‘i. These collections represent a new island record for Maui, where it was observed spreading locally in two locations.

Material examined. **MAUI**: East Maui, Ha‘ikū, Ulumalu Rd, appears to be spreading in this area, growing in wet lowland forest and roadside scrub with *Clusia rosea* and *Leucaena leucocephala*, 293 m (960 ft), 12 Dec 2006, *Starr & Starr 061212-01;* East Maui, Pi‘iholo, old University of Hawai‘i experimental station, some seedlings noted along with planted trees, spreading locally in *Eucalyptus* understory, 655 m (2150 ft), 16 Jan 2004, *Starr & Starr 040116-02*.

Clitoria ternatea L. **New island record**

Clitoria ternatea (butterfly pea) is documented as naturalized from O‘ahu and Maui (Wagner *et al.* 1999; Oppenheimer & Bartlett 2000). This collection represents a new island record for Lāna‘i.

Material examined. **LĀNA‘I**: Hulopo‘e Rd, in coastal dry scrub along with *Coccinia grandis, Cenchrus ciliaris, Prosopis pallida,* and *Leucaena leucocephala*, 93 m (304 ft), 2 Apr 2007, *Starr & Starr 070402-02.*

Indigofera hendecaphylla Jacq. **New island record**

Indigofera hendecaphylla (creeping indigo) was previously known from Kaua‘i, O‘ahu, Moloka‘i, Lāna‘i, Maui, and Hawai‘i (Wagner *et al.* 1999; Herbst & Wagner 1999; Starr *et al.* 2002; Oppenheimer 2003; Herbst *et al.* 2004). It is now also known from Midway Atoll, where a single sprawling patch was found along a road near the cargo pier. This collection represents a new island record for Midway Atoll.

Material examined. **MIDWAY ATOLL**: Sand Island, Nimitz Ave, near incinerator, one patch ca 3 m, flowers and fruit present, growing as a weed on side of road along with *Verbesina encelioides* and *Chloris virgata*, 3 m (10 ft), 4 Jun 2008, *Starr & Starr 080604-04.*

Moraceae

Ficus macrophylla Desf. ex Pers. **New island record**

Ficus macrophylla (Moreton Bay fig) was previously reported from Moloka‘i, Maui, and Hawai‘i (Oppenheimer & Bartlett 2000; Starr *et al.* 2002; Oppenheimer 2006). On

Midway Atoll, Moreton Bay fig was first collected in 1980 (*Herbst & Takeuchi 6331,* BISH). It was also collected in 1999 during a botanical survey (Starr & Martz 1999). No signs of reproduction were observed at the time; however, the pollinator wasp, *Pleistodontes froggatti*, not previously known from Midway Atoll, had been recently collected in 1997 (Nishida 1999). With the wasps present, reproduction could now be possible, and it was suggested that the two large trees be removed to prevent future spread. During a survey in 2008 (Starr *et al.* 2008), it was found that the two parent trees had not been removed and offspring had begun to spread. The first sapling was observed in the town area by the water plant, far from the two known adult trees. The water plant manager (C. Phosri) revealed that the plant was found nine years prior by his nephew (T. Sonchar) on top of the water tanks, which were ca 100 m from the parent trees, likely transported via mynah birds. The small plant was removed from the structure and planted at the water plant. Saplings were also observed near the two parent trees. This collection represents a new island record for Midway Atoll.

Material examined. **MIDWAY ATOLL**: Sand Island, West Beach, 3–4 sterile saplings of small size (<2 m tall) on old ironwood stump near revetment close to 2 large parent trees on either side of the old cart trail, parent trees with wasps in fruit, mostly green fruit, some ripe, growing with *Terminalia catappa*, *Coccoloba uvifera*, and *Hibiscus tiliaceus*, 3 m (10 ft), 8 Jun 2008, *Starr & Starr 080608-09*.

Myrtaceae

Eugenia uniflora L. **New island record**

Eugenia uniflora (Surinam cherry) is cultivated for its edible fruits and recorded as naturalized on the islands of Kauaʻi, Oʻahu, Molokaʻi, and Maui (Wagner *et al.* 1999; Oppenheimer 2003; Frohlich & Lau 2010). On Lānaʻi, it was widely cultivated in Lānaʻi City and occasionally naturalized in scrub areas nearby. This collection represents a new island record for Lānaʻi.

Material examined. **LĀNAʻI**: Lānaʻi City, Queens St, on side of road, in association with *Olea europaea* subsp. *cuspidata*, *Ruellia brevifolia*, and *Lantana montevidensis*, 488 m (1600 ft), 3 Apr 2007, *Starr & Starr 070403-04*.

Oleaceae

Olea europaea L. subsp. ***cuspidata*** (Wall. ex G. Don) Cif. **New island record**

Olea europaea subsp. *cuspidata* (African olive) spreads by fruit-eating birds and has been documented as naturalized on Kauaʻi, Oʻahu, Maui, and Hawaiʻi (Wagner *et al.* 1999; Lorence *et al.* 1995; Starr *et al.* 1999; Frohlich & Lau 2010). On Lānaʻi, it is widely cultivated and naturalized near Lānaʻi City. This collection represents a new island record for Lānaʻi.

Material examined. **LĀNAʻI**: Lānaʻi City, Queens St, on side of road, in association with *Eugenia uniflora* and *Lantana montevidensis*, 488 m (1600 ft), 3 Apr 2007, *Starr & Starr 070403-03*.

Oxalidaceae

Oxalis debilis Kunth var. ***corymbosa*** (DC.) Lourteig **New island record**

Oxalis debilis var. *corymbosa* (pink wood sorrel) was previously known to be naturalized on the islands of Kauaʻi, Oʻahu, Molokaʻi, Lānaʻi, Maui, and Hawaiʻi (Wagner *et al.* 1999; Herbst & Wagner 1999). On Midway Atoll, it is occasionally observed in lawns and

gardens in the residential area of Sand Island. This collection represents a new island record for Midway Atoll.

Material examined. **MIDWAY ATOLL**: Sand Island, 4208 Commodore Ave, few plants in and around garden, growing in lawn with *Eleusine indica*, *Lepidium virginicum*, and *Malva parviflora*, 3 m (10 ft), 1 Jun 2008, *Starr & Starr 080601-04.*

Poaceae

Sporobolus piliferus (Trin.) Kunth **New island record**

Sporobolus piliferus (Barundi dropseed) was previously reported as naturalized on Oʻahu (Snow 2008). It is now also naturalized on Midway Atoll, where it was found on Sand Island and Eastern Island. These collections represent a new island record for Midway Atoll. The species was originally reported as a new state record from the Big Island by Herbst & Clayton (1998), but that voucher was redetermined by N. Snow as *S. pyramidatus* (Snow & Lau 2010).

Material examined. **MIDWAY ATOLL**: Sand Island, east of Bulky Dump, near shoreline, scattered plants, mixed with other naturalized species including *Oenothera laciniata*, *Lobularia maritima*, and *Cynodon dactylon*, 3 m (10 ft), 2 Jun 2008, *Starr & Starr 080602-01;* Eastern Island, common on abandoned runways, mixed with other runway plants including *Lobularia maritima* and *Boerhavia repens*, 3 m (10 ft), 5 Jun 2008, *Starr & Starr 080605-02.*

Sporobolus pyramidatus (Lam.) Hitchc. **New island record**

Sporobolus pyramidatus (Madagascar dropseed) was previously known to be naturalized on Kure Atoll, Laysan, French Frigate Shoals, Kauaʻi, Oʻahu, Molokaʻi, and Hawaiʻi (Wagner *et al.* 1999; Wagner & Herbst 1995; Starr *et al.* 2006; Wood 2006; Snow & Lau 2010). It is now also naturalized on Midway Atoll, where it was found to be occasional on Spit Island. This collection represents a new island record for Midway Atoll.

Material examined. **MIDWAY ATOLL**: Spit Island, occasional on the north side of island, in association with *Lobularia maritima*, *Boerhavia repens*, *Tribulus cistoides*, and *Solanum nelsonii*, 1.5 m (5 ft), 3 Jun 2008, *Starr & Starr 080603-01.*

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Literature Cited

Belov, **M**. 2008. Chilean flora. Available at: http://www.chileflora.com/index.html (Accessed: 30 Sep 2008).

Charters, **M**. 2008. Wildflowers and other plants of southern California. Available: http://www.calflora.net/bloomingplants/index.html (Accessed: Sept. 30, 2008).

Francis, **J.K**. No date. *Caesalpinia bonduc*. Department of Agriculture, Forest Service, International Institute of Tropical Forestry, San Juan, PR. Available at: http://www.fs.fed.us/global/iitf/pdf/shrubs/Caesalpinia%20bonduc.pdf (Accessed: 1 Oct 2008).

Frohlich, **D**. **& Lau**, **A**. 2010. New plant records from O‘ahu for 2008. *Bishop Museum Occasional Papers* **107**: 3–18.

Herbst, **D**.**R**. **& Clayton**, **W**.**D**. 1998. Notes on the grasses of Hawai‘i: new records, corrections, and name changes. *Bishop Museum Occasional Papers* **55**: 17–38.

———. **& Wagner**, **W**.**L**. 1996. Contributions to the flora of Hawai‘i. V. *Bishop Museum Occasional Papers* **46**: 8–12.

———. **& Wagner**, **W**.**L**. 1999. Contributions to the flora of Hawai‘i. VII. *Bishop Museum Occasional Papers* **58**: 12–36.

———., **Staples**, **G**.**W**. **& Imada**, **C**.**T**. 2004. New plant records for 2002–2003. *Bishop Museum Occasional Papers* **78**: 3–12.

Imada, **C**.**T**., **James**, **S**.**A**. **& Kennedy**, **B**.**H**. 2007. New Hawaiian plant records from Herbarium Pacificum for 2007. *Bishop Museum Occasional Papers* **100**: 12–16.

Lorence, **D**.**H**., **Flynn**, **T**. **& Wagner**, **W**.**L**. 1995. Contributions to the flora of Hawai‘i. III. *Bishop Museum Occasional Papers* **41**: 19–58.

———. **& Flynn**, **T**. 2006. New naturalized plant records for Kaua‘i and Hawai‘i. *Bishop Museum Occasional Papers* **88**: 1–9.

Nishida, **G**.**M**. 1999. Midway terrestrial arthropod survey. Report *In:* 1995–1999 baseline surveys for alien species in marine and terrestrial habitats on Midway Atoll National Wildlife Refuge. United States Fish and Wildlife Service, Honolulu, HI.

Oppenheimer, **H**.**L**. 2003. New plant records from Maui and Hawai‘i counties. *Bishop Museum Occasional Papers* **73**: 3–30.

———. 2006. New plant records for 2004. *Bishop Museum Occasional Papers* **88**: 10–15.

———. 2007. New plant records from Moloka‘i, Lāna‘i, Maui, and Hawai‘i for 2006. *Bishop Museum Occasional Papers* **96**: 17–34.

———., **& Bartlett**, **R**.**T**. 2000. New plant records from Maui, O‘ahu, and Hawai‘i Islands. *Bishop Museum Occasional Papers* **64**: 1–10.

———., **Meidell**, **J**.**S**. **& Bartlett**, **R**.**T**. 1999. New plant records for Maui and Moloka‘i. *Bishop Museum Occasional Papers* **59**: 7–11.

PLANTS (**National Plants Database**). 2008. Online database. United States Department of Agriculture, Natural Resources Conservation Services, National Plant Data Center, Baton Rouge, LA. Available: http://plants.usda.gov (Accessed: September 30, 2008).

Snow, **N**. 2008. Notes on grasses (Poaceae) in Hawai‘i. *Bishop Museum Occasional Papers* **100**: 38–43.

———. **& Lau**, **A**. 2010. Notes on grasses (Poaceae) in Hawai‘i: 2. *Bishop Museum Occasional Papers* **107**: 46–60.

Starr, **F**. **& Martz**, **K**. 1999. Botanical survey of Midway Atoll: 1999 update. *In:* 1995–1999 Baseline surveys for alien species in marine and terrestrial habitats on Midway Atoll National Wildlife Refuge. U.S. Fish and Wildlife Service, Honolulu, Hawai‘i.

———., **Martz**, **K**. **& Loope**, **L**.**L**. 1999. New plant records from East Maui for 1998. *Bishop Museum Occasional Papers* **59**: 11–15.

———., **Martz**, **K**. **& Loope**, **L**.**L**. 2002. New plant records for the Hawaiian Archipelago. *Bishop Museum Occasional Papers* **69**: 16–27.

———., **Starr**, **K**. **& Loope**, **L**.**L**. 2003. New plant records for the Hawaiian Archipelago. *Bishop Museum Occasional Papers* **74**: 23–34.

———., **Starr**, **K**. **& Loope**, **L**.**L**. 2004. New plant records for the Hawaiian Archipelago. *Bishop Museum Occasional Papers* **79**: 20–30.

———., **Starr**, **K**. **& Loope**, **L**.**L**. 2006. New plant records for the Hawaiian Archipelago. *Bishop Museum Occasional Papers* **87**: 31–43.

———., **Starr**, **K**. **& Loope**, **L**.**L**. 2008. Botanical survey of Midway Atoll. Report prepared for Fish and Wildlife Service.

Wagner, **W**.**L**. **& Herbst**, **D**.**R**. 1995. Contributions to the flora of Hawai‘i. IV. New records and name changes. *Bishop Museum Occasional Papers* **42**: 13–27.

———., **Herbst**, **D**.**R**. **& Sohmer**, **S**.**H**. 1999. *Manual of flowering plants of Hawai‘i.* Rev. ed. 2 vols. University of Hawai‘i Press & Bishop Museum Press, Honolulu, HI. 1919 pp.

Wood, **K**. 2006. New plant records and rediscoveries within the Hawaiian Islands. *Bishop Museum Occasional Papers* **88**: 15–19.