

New Plant Records from the Hawaiian Archipelago

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The following contributions of plants collected before 2006 include 50 new records of plants located on the islands of Moloka'i, Lāna'i, Kaho'olawe, Maui, and Hawai'i. The records are comprised of 2 new state records, 5 new naturalized records, 38 new island records, and 5 range extensions. 12 of the records are from Moloka'i, 4 are from Lāna'i, 15 are from Kaho'olawe, 17 are from Maui, and 2 are from Hawai'i. All but 3 of the records are for nonnatives. Images of most of the material examined can be seen at <<http://www.hear.org/starr/>>. Voucher specimens are housed in the Bishop Museum's *Herbarium Pacificum* (BISH), Honolulu, Hawai'i.

Acanthaceae

Barleria cristata L.

New island record

Barleria cristata (Philippine violet) was previously reported from Kaua'i, O'ahu, Maui, and Hawai'i (Wagner *et al.*, 1999; Oppenheimer & Bartlett, 2002). This sprawling shrub is now also known from Moloka'i, where large patches can be found in the understory of kiawe (*Prosopis pallida*) along the road to the East end of Moloka'i.

Material examined. **MOLOKA'I:** East Moloka'i, Kalua'aha, filling understory in many spots along Kamehameha Hwy., in association with *Prosopis pallida*, 10 ft [3 m], 17 May 2005, Starr & Starr 050517-5.

Thunbergia fragrans Roxb.

New island record

Thunbergia fragrans (white thunbergia) was reported from Kaua'i, O'ahu, Maui, and Hawai'i, and is noted to probably be on all of the main islands (Wagner *et al.*, 1999). This twining vine with white flowers is now also known from Moloka'i, where is a volunteer in yards in Kualapu'u.

Material examined. **MOLOKA'I:** Central Moloka'i, Naiwi, Kualapu'u, volunteering in yards, in association with *Ochna* and *Carmona retusa*, 850 ft [260 m], 18 May 2005, Starr, Starr, Buchanan, & Hart 050518-3.

Thunbergia laurifolia Lindl.

New island record

Thunbergia laurifolia (blue trumpet vine) was previously known from Kaua'i, O'ahu, and Maui (Starr *et al.*, 1999; Oppenheimer, 2003). This sprawling vine is now also known from Lāna'i, where it can be found in Kapano Gulch.

Material examined. **LĀNA'I:** Lāna'i City, Kapano Gulch, 600 ft [182 m], 23 Jun 2005, Starr, Starr, Anderson, & Anderson 050623-4.

Aizoaceae

Tetragonia tetragonioides (Pall.) Kuntze

New island record

Tetragonia tetragonioides (New Zealand spinach) was previously known from Midway, Nihoa, Kaua'i, O'ahu, Maui, and Hawai'i (Wagner *et al.*, 1999; Oppenheimer *et al.*, 1999;

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Starr & Martz, 2000; Starr *et al.*, 2003). This succulent herb is now also known from Moloka'i, where it grows near the coast at Hālawā Valley.

Material examined. **MOLOKA'I:** East Moloka'i, Hālawā, Hālawā Valley, near coast, in association with *Sesuvium portulacastrum*, *Vigna marina*, and *Tournefortia argentea*, 5 ft [2 m], 17 May 2005, Starr & Starr 050517-13.

Amaranthaceae

Amaranthus dubius Mart. ex Thell.

New island record

Amaranthus dubius (spleen amaranth) was previously reported from Kaua'i, O'ahu, Lāna'i, and Hawai'i (Wagner *et al.*, 1999). This weedy herb is now also known from Maui, where it can be found scattered about Pu'u o Kali.

Material examined. **MAUI:** East Maui, Kihei, Pu'u o Kali, growing in *a'a* lava in association with *Amaranthus hybridus*, *Sida fallax*, *Cenchrus ciliaris*, and *Prosopis pallida*, 1000 ft [305 m], 27 May 2004, Starr, Starr, Medeiros, & vonAllmen 040527-1.

Asteraceae

Centratherum punctatum Cass.

New island record

subsp. *punctatum*

Centratherum punctatum subsp. *punctatum* (larkdaisy) was previously reported from Kaua'i, Maui, and Hawai'i (Lorence *et al.*, 1995; Oppenheimer, 2003; Starr *et al.*, 2004). This weedy purple herb is now also known from Moloka'i, where it is scattered along Kamehameha Hwy on the East end of Moloka'i.

Material examined. **MOLOKA'I:** East Moloka'i, Moakea, Kukumamalu Gulch, near Kuaia, growing along side of Kamehameha Hwy., in association with *Hypparhenia* sp., 600 ft [182 m], 17 May 2005, Starr & Starr 050517-8.

Conyza canadensis (L.) Cronq.

New island record

var. *pusilla* (Nutt.) Cronq.

Conyza canadensis (horseweed) was previously reported from all the main islands except Kaho'olawe (Wagner *et al.*, 1999). This diminutive herb is now also known from Kaho'olawe, where it is locally common near the summit.

Material examined. **KAHO'OLAWA:** Pu'u Moaulanui, on West rim of Lua Makika, in experimental planting area, in association with *Eragrostis curvula*, *Pluchea* spp., and *Leucaena leucocephala*, 1400 ft [425 m], 8 Feb 2005, Starr, Starr, Higashino, Bruch, & Bryce 050208-2.

Dyssodia tenuiloba (DC.) B.L. Rob.

New island records

Dyssodia tenuiloba (dog weed, Dahlberg daisy) was previously reported from the islands of Maui and O'ahu (Starr *et al.*, 2002), and is now known from Moloka'i and Kaho'olawe. On Kaho'olawe this quickly spreading bedding plant with small yellow flowers and highly dissected leaves has been found in two widely separated high traffic locations. On Moloka'i this bedding plant has escaped from plantings near the Hotel Moloka'i. *Dyssodia tenuiloba* should also be looked for on other Hawaiian Islands, such as Kaua'i, where it was collected (Flynn 6747 BISH) in Lihue at the Wal-Mart Garden Center for \$0.77 per 4-inch pot and labeled as "Zinnia 'Dreamland mix' F1 hybrids".

Material examined. **KAHO'OLAWA:** Honokanaia, on side of path from helicopter LZ to bunkhouse, 15 ft [5 m], 30 Mar 2004, Starr, Starr, Higashino, & Abbott 040330-1; Moaulanui, near water catchment building, 1300 ft [400 m], 7 Jun 2004, Starr, Starr, Higashino, & Bruch 040607-2. **MOLOKA'I:** Kaunakakai, 'Ōhai Ali'i Rd., on side of road, spreading from nearby plantings, 25 ft [8 m], 17 May 2005, Starr & Starr 050517-14.

Lactuca sativa* L.*New island record**[Syn. *Lactuca serriola* L.]

Previously known from all the main islands except Ni'ihau and Kaho'olawe (Wagner & Herbst, 1995; Wagner *et al.*, 1999; Oppenheimer, 2003), *Lactuca sativa* (prickly lettuce) is now also known from Kaho'olawe, where this prickly herb is occasionally found along roadsides on the summit plateau.

Material examined. **KAHO'OLAWA:** North trail from Lua Makika to Hakioawa, 1150 ft [350 m], 30 Mar 2004, Starr, Starr, & Tokishi 040330-6; Pu'u Moaulaiki, along road to pu'u, 1350 ft [411 m], 30 Mar 2004, Starr, Starr, & Tokishi 040330-7.

Pluchea xfosbergii* Cooperr. & Galang*New island record**

Previously known from Midway Atoll, Kaua'i, O'ahu, Moloka'i, and Maui (Wagner *et al.*, 1999), *Pluchea xfosbergii*, a spontaneous hybrid, is now also known from Kaho'olawe, where it can be found growing on the summit in association with *Pluchea carolinensis* and *Pluchea indica*.

Material examined. **KAHO'OLAWA:** Moaulanui, north rim, sprawling patches, 1450 ft [441 m], 27 Aug 2003, Starr, Starr, & Abbott 030827-2; N side of Lua Makika, 1444 ft [440 m], 18 Nov 2004, Oppenheimer H110406.

Senecio madagascariensis* Poir*New island records**

Senecio madagascariensis (fireweed) was previously documented from Kaua'i, O'ahu, Maui, and Hawai'i (Lorence *et al.*, 1995; Starr *et al.*, 1999; Oppenheimer & Bartlett, 2002; Herbst *et al.*, 2004), and is now established on Lāna'i and Kaho'olawe. On Lāna'i this weedy little Asteraceae is found at the Koele golf course. On Kaho'olawe *S. madagascariensis* is found as single plants in widely separated locations.

Material examined. **LĀNA'I:** Koele, Koele golf course, 600 ft [182 m], 23 June 2005, Starr, Starr, Anderson, & Anderson 050623-2. **KAHO'OLAWA:** North trail from Lua Makika to Hakioawa, 1150 ft [350 m], 30 Mar 2004, Starr, Starr, & Tokishi 040330-3; Moaulanui, near summit, 1480 ft [450 m], 11 May 2004, Starr, Starr, & Higashino 040511-1.

Boraginaceae***Carmona retusa* Poir****New island record**

Carmona retusa (scorpion bush, Philippine tea) was previously known from Kaua'i and Maui (Lorence *et al.*, 1995; Starr *et al.*, 2003). This prolific shrub is now also known from Moloka'i, where it is widely naturalized in and near Kaunakakai.

Material examined. **MOLOKA'I:** Kaunakakai, Moloka'i Shores, volunteering in hard-to-reach places, widely cultivated and naturalized in this area, in association with *Schefflera actinophylla* and *Washingtonia* sp., 15 ft [5 m], 16 May 2005, Starr & Starr 050516-5.

Brassicaceae***Lepidium oblongum* Small****New island record**

Lepidium oblongum (pepperwort) was previously known from all the main islands except Maui and Hawai'i (Lorence *et al.*, 1995; Wagner *et al.*, 1999). This diminutive herb is now also known from Maui, where it was found scattered about Pu'u o Kali.

Material examined. **MAUI:** East Maui, Kihei, Pu'u o Kali, growing in *a'a* lava in association with *Sida fallax* and *Erythrina sandwicensis*, 1000 ft [305 m], 28 Jan 2004, Starr, Starr, Medeiros, & vonAllmen 040128-2.

Chenopodiaceae***Chenopodium oahuense* (Meyen) Aellen New island record**

Chenopodium oahuense ('aweoweo) was previously known from Lisianski, Laysan, French Frigate Shoals, Necker, Nihoa, and all the main islands except Kaho'olawe (Wagner *et al.*, 1999). This hardy native is now also known from Kaho'olawe where it was widely planted and sown as seed in restoration efforts on the island, and has now spread far beyond those plantings, from sea level to the summit. The original stock is believed to have come from Maui.

Material examined. **KAHO'OLAWA:** Honokanaia, near base camp, in coastal wetland on the makai side of the old coastal road, in association with *Cenchrus ciliaris*, *Prosopis pallida*, *Sida fallax*, and *Abutilon incanum*, 10 ft [3 m], 8 Feb 2005, Starr, Starr, Higashino, Abbott, & Bryce 050208-1.

Salsola tragus* L.*New island record**

Salsola tragus (prickly Russian thistle) was previously known from O'ahu, Kaho'olawe, Maui, and Hawai'i (Wagner *et al.*, 1997; Wagner *et al.* 1999; Herbst & Wagner, 1999; Oppenheimer & Bartlett, 2002; Herbst *et al.*, 2004). This spiny dryland plant is now also known from Moloka'i where it can be found near the dump. The Moloka'i Invasive Species Committee is planning to control the plants at this site.

Material examined. **MOLOKA'I:** Na'iwa, Moloka'i dump, near Manawainui Gulch, scattered plants growing in industrial area hard pan and nearby scrub, in association with *Leucaena leucocephala*, 275 ft [84 m], 16 May 2005, Starr & Starr 050516-3.

Convolvulaceae***Ipomoea cairica* (L.) Sweet****Range extension**

Ipomoea cairica (koali 'ai, ivy-leaved morning glory) was previously reported from all the main islands except Maui (Wagner *et al.*, 1999). This palmately lobed vine with purple flowers was then documented from West Maui by Oppenheimer & Bartlett (2000) and is here reported as a range extension to East Maui, where it was sprawling and rooting at the nodes in a gulch in Kula.

Material examined. **MAUI:** East Maui, Kula, filling gulch on mauka side of Haleakalā Hwy. near residential area, 3000 ft [914 m], 27 Mar 2004, Starr, Starr, & Bryce 040327-1.

Crassulaceae***Kalanchoe daigremontiana*****New island record**

Raymond-Hamet & H. Perrier

Kalanchoe daigremontiana (mother of millions, devil's backbone) was previously reported as a new naturalized record from Kaua'i (Lorence *et al.*, 1995) where it was locally naturalized on cliffs in dry *Leucaena* secondary vegetation. This large succulent with showy flowers is now also known from Maui, where it is common in pastures around Pu'u Pimoe.

Material examined. **MAUI:** East Maui, Kanaio, Pu'u Pimoe, growing in dry scrub and pastures in association with *Prosopis pallida* and *Amaranthus spinosus*, 1500 ft [457 m], 31 Mar 2004, Starr, Starr, & Wysong 040331-3.

Cyperaceae***Cyperus cyperinus* (Retz.) Suringar****New island record**

[Syn. *Mariscus cyperinus* (Retz.) Vahl]

Cyperus cyperinus was previously known from Kaua'i, O'ahu, and Moloka'i (Wagner *et al.*, 1999). This collection represents a new island record from Maui where a lone clump of this native sedge was found on a dry lava field in an enclosure in lower Kanaio.

Material examined. **MAUI:** East Maui, Kanaio National Guard enclosure, on a lava in sparse *Dodonaea* shrubland, 400 ft [121 m], 31 Mar 2004, Starr, Starr, & Wysong 040331-1.

Cyperus difformis* L.*Range extension**

Cyperus difformis was previously known from Kaua‘i, O‘ahu, and West Maui (Wagner *et al.*, 1999; Starr *et al.*, 2002). The following collection represents a range extension to East Maui where this sedge can be found as a roadside weed on the Hana Hwy.

Material examined. MAUI: East Maui, Huelo, Hāna Hwy, growing in a puddle and locally common in area of lowland, disturbed, wet roadside, 600 ft [182 m], 7 Aug 2003, Starr & Starr 030807-3.

Fabaceae***Acacia mearnsii* De Wild.****New island record**

Acacia mearnsii (black wattle) was previously known from all the main islands except Ni‘ihau and Kaho‘olawe (Hughes, 1995; Wagner *et al.*, 1999). This aggressive tree is now also known from Kaho‘olawe where it was used in planting trials (KIRC, 1998) and has since been found beyond those plantings as a volunteer.

Material examined. KAHO‘OLAWA: Kanapou, Native Hawaiian Plant Society restoration site along K2, in association with *Dodonaea viscosa* and *Salsola tragus*, 1150 ft [350 m], 27 Dec 2004, Starr, Starr, Higashino, & Price 041227-2.

Caesalpinia decapetala* (Roth) Alston*New island record**

Caesalpinia decapetala (cat’s claw) was previously known from Ni‘ihau, Kaua‘i, O‘ahu, East Maui, and Hawai‘i (Wagner *et al.*, 1999). This spiny sprawling plant is now also known from Lāna‘i where it can be found through much of Kapano Gulch. This plant still needs to be collected from Moloka‘i, where it is well established in Waiakalae Gulch.

Material examined. LĀNA‘I: Lāna‘i City, Kapano Gulch, 600 ft [182 m], 23 Jun 2005, Starr, Starr, Anderson, & Anderson 050623-1.

Crotalaria assamica* Benth.*New island record**

Crotalaria assamica (rattle pod) was previously known from O‘ahu, Maui, and Hawai‘i (Wagner *et al.*, 1999; Starr *et al.*, 2002). This simple leaved rattle pod is now also known from Moloka‘i where it is locally common on the side of dirt roads in Ho‘olehua.

Material examined. MOLOKA‘I: Ho‘olehua, side of dirt road, in association with *Leucaena leucocephala*, 550 ft [168 m], 18 May 2005, Starr, Starr, Buchanan, & Hart 050518-5.

Crotalaria trichotoma* Bojer*New state record**

Native to Mozambique and Tanzania (PIER, 2005; GRIN, 2005), and previously not known from Hawai‘i, *C. trichotoma* (curara-pea) was collected in Ha‘iku, Maui, in low elevation, moist, disturbed roadside vegetation. The identification was determined by R.M. Polhill, Royal Botanical Gardens (RBG), Kew. This species can be distinguished by the following characteristics. “Erect herb, sts. streaked, pubescent; lfts. 3, elliptic to 2.25 in [1 cm] long; racemes loose, many-fl., to 10 in. long; calyx glabrous, petals yellow, standard streaked; fr. oblong-cylindrical, pubescent” (L.H. Bailey Hortorium, 1976). This species is considered invasive in Papua New Guinea and northern Queensland, Australia (PIER, 2005). This collection represents a new state record for Hawai‘i.

Material examined. MAUI: East Maui, Ha‘iku, West Kuiaha Rd, in association with *Citharexylum caudatum* and *Psidium guajava*, 700 ft [213 m], 29 Nov 2000, Starr & Martz 001129-4.

Zornia* cf. *reticulata* J.E. Smith*New state record**

Native from New Mexico (United States) to Brazil, the West Indies, and Australia (FAO, 2005), *Zornia* cf. *reticulata* (*zornia*), was found on Maui in an empty lot by pastures on

West Kuiaha Rd, Ha'iku. The area is mesic to wet lowland rural residential. *Zornia* cf. *reticulata* can be distinguished by the following: "A diffuse annual with two ovate-lanceolate pointed leaflets, flowers distant in peduncled spikes, pod joints two to seven, roundish, convex or reticuled on sides, flowers yellow concealed in the stipular bracts" (FAO, 2005). The plant was determined to genus level by Gwilym Lews of the RBG, Kew, using relevant taxonomic revision by Mohlenbrock (1961). The species was tentatively determined by George Staples and Derral Herbst of Bishop Museum who report that specimens from Guam appear to be the same species. This collection represents a new state record for Hawai'i.

Material examined. MAUI: East Maui, Ha'iku, scattered in empty lot by pastures on West Kuiaha Rd, in association with *Andropogon virginicus* and *Acacia koa*, 900 ft [274 m], 29 Nov 2000, Starr & Martz 001129-1.

Lamiaceae

Hyptis suaveolens (L.) Poir.

New island record

Previously reported as sparingly naturalized in relatively dry, disturbed sites, at least on O'ahu and Hawai'i (Wagner & Herbst, 1995; Wagner *et al.*, 1999), *H. suaveolens* is now also known from Maui in similar dry disturbed habitat. The identification was made by Alan Paton, RGB, Kew. This collection represents a new island record for Maui.

Material examined. MAUI: East Maui, Kaupo, scattered plants in Hawelewele Gulch, 40 ft [12 m], 26 Jul 2001, Starr & Martz 010726-1.

Liliaceae

Asparagus plumosus J. G. Baker

New island record

Asparagus plumosus (asparagus fern) was previously known from Kaua'i, O'ahu, Maui, Hawai'i (Lorence *et al.*, 1995; Imada *et al.*, 2000; Oppenheimer & Bartlett, 2000; Starr *et al.*, 2002; Oppenheimer & Bartlett, 2002). This twining vine is now also known from Moloka'i where it is found wild along Kamehameha Hwy near 'Ōhi'a bridge.

Material examined. MOLOKA'I: 'Ōhi'a, 'Ōhi'a bridge, side of Kamehameha Hwy, climbing up into *Syzygium cumini* trees, 10 ft [3 m], 17 May 2005, Starr & Starr 050517-3.

Linaceae

Linum bienne Mill.

New island record

Linum bienne (blue flax) is previously only known from a single collection made in 1982 by A. Medeiros from Wailaulau, Maui where it was sparingly naturalized in meadows (Wagner *et al.*, 1999). It was then also reported from Kaua'i (Oppenheimer, 2004). It is now also known from Hawai'i, scattered in subalpine pasture and mamane (*Sophora chrysophylla*) shrubland on the north slope of Mauna Kea in the vicinity of Pu'u Mali.

Material examined. HAWAI'I: Mauna Kea, Pu'u Mali, in association with *Pennisetum clandestinum* and *Sophora Chrysophyllum*, 6600 ft [2000 m], 23 Jul 2004, Starr, Starr, & Crummer 040723-4.

Malvaceae

Sida ciliaris L.

New island record

Sida ciliaris (red flowered sida) was previously known from Kaua'i, O'ahu, and Maui (Wagner *et al.*, 1997; Oppenheimer & Bartlett, 2000; Staples *et al.*, 2003, Starr *et al.*, 2004). This prostrate shrub is now also known from Kaho'olawe where it is found in the "lawn" at base camp.

Material examined. KAHO'OLAWA: Honokanaia, growing in disturbed lawn at base camp near the galley, in association with *Indigofera spicata* and *Cenchrus ciliaris*, 20 ft [6 m], 13 Oct 2004, Starr, Starr, Higashino, & Abbott 041013-1.

Meliaceae***Cedrela odorata* L.****New naturalized record**

Cedrela odorata (West Indian cedar) is a tall, nearly smooth, unpleasant smelling tree native from the West Indies south to the Amazon regions (Neal, 1965). This species is similar in appearance to *Toona* in Hawai'i and can be distinguished by having seeds winged in the lower part only, yellowish flowers with the ovary raised on a cylindrical disk, leaves with 10 to 20 pairs of narrow-oblong leaflets 5–7 in [2–3 cm] long, reaching heights of 100 ft [33 m] and diameters of 3–6 ft [1–2 m] above the buttresses at the base, and unbranched to about half way up (Neal, 1965). This large tree is commonly planted in forestry plantations and the timber is said to be aromatic, light weight, and strong (Neal, 1965). In the state of Hawai'i, over 26,000 *C. odorata* trees were planted from 1910–1960 (Skolmen, 1960). About 9,000 of these were planted on the island of Maui in the vicinities of Hana, Ko'olau, and Makawao (Skolmen, 1960). *Cedrela odorata* is now naturalized in these areas and is spreading from forestry plantations into nearby lowland disturbed wet forest. This collection documents this species on Maui and represents a new naturalized record for the state of Hawai'i. *Cedrela odorata* was also planted in mass on Kaua'i, O'ahu, Moloka'i, and Hawai'i, and should be investigated on those islands to determine if similar spread from plantations is occurring.

Material examined. MAUI: East Maui, Nua'ailua, Hāna Hwy, near Keanae in small gulch east of Nua'ailua bay, established in the area, numerous seedlings, saplings, and large adult trees observed, 200 ft [60 m], 29 Nov 2000, Starr & Starr 030807-1.

Myrtaceae***Angophora costata* (Gaertn.) Britten****New naturalized record**

[Syn. *Angophora lanceolata* Cav.]

Angophora costata (gum myrtle, lanceleaf gum myrtle), native to Queensland and New South Wales, Australia, is previously known in Hawai'i from forestry plantings, primarily on O'ahu (10,336 trees) and Maui (over 7,700 trees), with lesser plantings on Kaua'i (558 trees) and Hawai'i (989 trees) (Little & Skolmen, 1989; Skolmen, 1960). On O'ahu, trees can be observed on the Mānoa Cliffs Trail, Tantalus Mountain and there extensive plantings in Waiawa and Waiiau above Pacific Pallisades and Waimano Home (Little & Skolmen, 1989). On Maui, it was planted in Ko'olau, Kula, Makawao, and Waihou Springs forest reserves and was "growing well" in the Borge Ridge area of the Makawao Forest Reserve (Little & Skolmen, 1989). This large tree is now known to be naturalized on Maui, in the Olinda area. *Angophora costata* is similar in appearance to *Eucalyptus*, but differs in having opposite paired leaves and flowers with 5 separate white petals (Little & Skolmen, 1989). It is a tall tree, to 80 ft [24 m] in height; bark is smooth, flaking off and becoming mottled and gray brown; leaves are lanceolate, to 5 in [2 cm] long, and short petioled; flowers are white, in clusters, to 1 in. across, with short panicles, and many white thread like stamens; fruit cuplike, rounded, about 1/2 in [0.5 cm]. long, with 10 long ridges, blackish, hard, thick walled, opening like a lid, 3 celled (L.H. Bailey Hortorium, 1976; Little & Skolmen, 1989).

Material examined. MAUI: East Maui, Kalialinui, Olinda, Kahakapao Gulch, widely planted as a forestry tree along the mauka boundary of the Forest Reserve, seedlings and saplings spreading from plantings into nearby pasture and gulches, in association with *Eucalyptus* sp., *Metrosideros polymorpha*, and *Vaccinium* sp., 3800 ft [1158 m], 18 Aug 2005, Starr & Starr 050818-2.

Ochnaceae***Ochna thomasi* Engler & Gilg****New island record**

Ochna thomasi (Mickey Mouse plant) was previously known from O'ahu and Maui

(Herbarium Pacificum Staff, 1998; Imada *et al.*, 2000; Oppenheimer, 2003; Starr *et al.* 2004). This colorful shrub is now also known from Lānaʻi where it is found in Kapano Gulch.

Material examined. LĀNAʻI: Lānaʻi City, Kapano Gulch, 600 ft [182 m], 23 Jun 2005, *Starr, Starr, Anderson, & Anderson 050623-3.*

Passifloraceae

Passiflora suberosa L.

Range extension

Passiflora suberosa (*huehue haole*) was previously known from Kauaʻi, Oʻahu, Lānaʻi, Maui, and Hawaiʻi (Lorence *et al.*, 1995; Wagner *et al.*, 1997; Wagner *et al.*, 1999). On Maui, this passion vine was previously only known from West Maui, and is now known from East Maui, where it is established in Piʻiholo. The Piʻiholo Agricultural Experiment Station on East Maui was at one time growing many different species of *Passiflora*. Ed Tamura with the Hawaii Department of Agriculture asked them to stop the experimental plantings, for fear of these new *Passiflora* species spreading from the station. However, the plea was too late, and *P. suberosa* is now one of a handful of species of *Passiflora* that were able to escape beyond the experimental plantings at Piʻiholo before the plantings were destroyed. The following collection represents a range extension to East Maui, where this passion vine with small blue fruits can be found twining under *Eucalyptus*.

Material examined. MAUI: East Maui, Piʻiholo, sprawling in understory of *Eucalyptus* sp. and *Acacia mearnsii* at old agricultural experiment station, 3400 ft [1036 m], 16 Jan 2004, *Starr & Starr 040116-1.*

Pittosporaceae

Pittosporum undulatum Venten.

New island record

Pittosporum undulatum (Victorian box, mock orange) was previously known from Lānaʻi and Hawaiʻi (Wagner *et al.*, 1999). This aggressive yet sweet smelling tree is now also known from Maui where it is sparingly naturalized in Kula.

Material examined. MAUI: East Maui, Lower Kimo Rd, Kula, hedge of dozens of trees surrounding property, in association with *Macadamia ternifolia*, 3000 ft [305 m], 27 Aug 2004, *Starr & Starr 040827-1*; East Maui, Pulehu Iki, Kula, several large cultivated trees with seedlings and saplings in nearby gulch and across road, in association with *Acacia mearnsii* and *Pinus* sp., 3700 ft [1127 m], 16 Feb 2005, *Starr & Starr 050216-1.*

Poaceae

Bothriochloa barbinodis (Lag.) Herter

New island record

Bothriochloa barbinodis (fuzzy top) was previously known from the islands of Niʻihau, Oʻahu, Molokaʻi, and Maui (Wagner *et al.*, 1999). It is now also known from the island of Hawaiʻi.

Material examined. HAWAIʻI: Mauna Kea / Kohala, Waimea, on the side of the road between town and the airport, in association with *Pennisetum clandestinum*, 2600 ft [792 m], 23 Jul 2004, *Starr & Starr 040723-6.*

Bothriochloa bladhii (Retz.) S.T. Blake

New island record

Bothriochloa bladhii (airport grass) was previously known from Molokaʻi, Maui, and Hawaiʻi (Herbarium Pacificum Staff, 1997; Wagner *et al.*, 1999). This collection represents a new island record for Kahoʻolawe where this grass is established, though not common, on the summit.

Material examined. KAHOʻOLAWE: Moaulanui, north rim, in hardpan on side of road, windswept shrub/grassland, 1450 ft [441 m], 30 Jul 2003, *Starr, Starr, Abbott, & Mar 030730-1.*

***Brachiaria brizantha* (Hoch. ex Rich.) Stapf New naturalized record**

Native to tropical Africa (PIER, 2005), *Brachiaria brizantha* (beardgrass) was previously known from experimental stations on O‘ahu (*Hosaka* 2553 BISH) and Moloka‘i (*Joy HA-5222* BISH). On Kaho‘olawe, *B. brizantha* was found in a small dense clump on the side of the road near the summit. The species can be distinguished by the following characteristics. “Culms erect, 60–120 cm high; leaf blades smooth, markedly nerved, 20–30 cm long, 6–18 mm broad; flowering culms bearing up to 4 racemes, these ascending, recurved, the rachis strong and narrow, usually deep purple in color; spikelets large, purple-tinged on margins, 4–6 mm long, the lower glume purple-tinged, less than half length of spikelet and clasping base of spikelet, the upper glume as long as spikelet, sparsely hairy toward apex” (Smith, 1979). This collection represents a new naturalized record for the state of Hawai‘i.

Material examined. **KAHO‘OLAWE:** Moaulanui, near K1 where it heads into Lua Makika crater, about 5 m from side of road, occurring in an open dry disturbed area with *Dodonaea viscosa* and *Neonotonia wightii*, 1300 ft [396 m], 07 Jun 2004, *Starr & Starr 040607-4*.

***Pennisetum setaceum* (Forssk.) Chiov. New island records**

Pennisetum setaceum (fountain grass) is considered a serious pest in dry areas of Hawai‘i, and has been previously recorded from Kaua‘i, O‘ahu, Lāna‘i, and Hawai‘i (Wagner *et al.*, 1999). The following collections represent new island records for the islands of Maui and Kaho‘olawe. Infestations on both islands are still relatively localized. On Maui, *P. setaceum* was known to be present since the 1970s (Robert Hobdy, pers. comm.). There have been off and on efforts to remove fountain grass from Maui. Today, *P. setaceum* is a MISC target, with small populations of this tenacious grass persisting in Wailuku, Waihe‘e, Kahakuloa, and Kula. Other sites on Maui where *P. setaceum* was previously known from but was removed and/or no longer exists include Makena, Kanaio, and Waikapu. On Kaho‘olawe, *P. setaceum* was first observed by Lloyd Loope in 1996. All the known plants on Kaho‘olawe have since been removed, and the lone known population persists through a seed bank, with new plants being pulled by Kaho‘olawe Island Reserve Commission (KIRC) staff and volunteers.

Material examined. **KAHO‘OLAWE:** Lua Kealialalo, on east side, in relatively open area, about 20 large fruiting plants scattered with *Cenchrus ciliaris*, all plants pulled and bagged, 1000 ft [305 m], 16 Feb 2004, *Starr, Starr, Higashino, & Andrade 040216-1*. **MAUI:** East Maui, Wailuku, Maui Lani Parkway, large patch and scattered plants on sandy hillside in disturbed dry scrub along with *Leucaena leucocephala*, *Prosopis pallida* and *Cenchrus ciliaris*, 200 ft [60 m], 21 Nov 2001, *Starr & Martz 011121-1*; East Maui, Kula, Waipoli Rd., coming up in recently cleared area of mesic woodland in association with *Acacia mearnsii* and *Ehrharta erecta*, collection made by MISC crew, 3400 ft [1036 m], 6 Jan 2004, *Starr, Starr, & MISC 040106-1*.

***Sorghum bicolor* (L.) Moench Range extension**

Sorghum bicolor (sorghum) was previously known from Kaua‘i, O‘ahu, and Hawai‘i (Wagner *et al.*, 1999) and was recently reported from West Maui (Oppenheimer, 2003). The following collections represent a range extension to East Maui, where scattered individuals were found in widely separated sites.

Material examined. **MAUI:** East Maui, Kanahā Beach, Ka‘a Pt., few plants in association with *Prosopis pallida* and *Cenchrus ciliaris*, 15 ft [5 m], 01 May 2004, *Starr & Starr 040501-1*; Kihei, Kihei Community and Aquatic Center, few plants scattered in lawn and scrub areas by *Acacia confusa* plantings, 80 ft [24 m], 5 May 2004, *Starr, Starr, & Fukada 040505-2*.

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

Sporobolus pyramidatus (whorled dropseed) was previously known from Kure, Laysan, French Frigate Shoals, and O'ahu (Wagner & Herbst, 1995; Wagner *et al.*, 1999). This coastal grass is now also known from Moloka'i where it is locally abundant near the coast on the East end of the island.

Material examined. **MOLOKA'I:** East Moloka'i, Puniu'ohua, Waialua, locally abundant along Kamehameha Hwy., overlooking coast, in association with *Prosopis pallida* and *Paspalum vaginatum*, 15 ft [5 m], 17 May 2005, Starr & Starr 050517-6.

Polygonaceae***Antigonon leptopus* W.J. Hooker & Arnott New island record**

Antigonon leptopus (Mexican creeper) was previously known from Midway, Kaua'i, O'ahu, Lāna'i, and Hawai'i (Brueggmann, 1998; Wagner *et al.*, 1999; Starr *et al.*, 2002). This vine with pink flowers is now also known from Moloka'i where it is found here and there along the coast and in waste areas along Kamehameha Hwy near Kakahaia.

Material examined. **MOLOKA'I:** Makolelau, near Kakahaia National Wildlife Refuge Kamehameha Hwy., here and there along coast and in waste areas, in association with *Syzygium cumini*, 10 ft [3 m], 17 May 2005, Starr & Starr 050517-1.

Proteaceae***Banksia integrifolia* L.f. New naturalized record**

Banksia integrifolia (coastal banksia), native to Queensland and New South Wales, Australia, was previously known from cultivation on Maui. This tree can now be found in the wild on Maui where it is sparingly naturalized in wide ranging localities on Haleakalā Ranch and other properties near Crater Rd. *Banksia integrifolia* can be distinguished by the following characteristics: "Tree, to 30 ft., leaves scattered, oblong to lanceolate, to 8 in. long and 1 in. wide, entire or sometimes toothed, white tomentose beneath; spikes to 6 in. long; flowers yellowish" (L.H. Bailey Hortorium, 1976).

Material examined. **MAUI:** East Maui, Kalialinui, one plant on sheer wall overhanging Crater Rd., in association with *Sadleria* sp. and *Dryopteris wallichiana*, 5800 ft [1767 m], 19 Jul 2005, Starr & Starr 050719-1; East Maui, Kamehameiki Gulch, tree with seedlings nearby, 4500 ft [1372 m], 17 Aug 2005, Starr, Starr, & Bio 050817-3.

***Grevillea robusta* A. Cunn. ex R. Br. New island record**

Grevillea robusta (silky oak) was extensively planted in forestry efforts in Hawai'i from 1919–1959, with over 2 million trees planted on all the main islands except Kaho'olawe (Wagner *et al.*, 1999). Naturalized specimens were known from the islands of Kaua'i, O'ahu, Maui, and Hawai'i (Wagner *et al.*, 1999) and have also now been reported from Lāna'i and Moloka'i (Herbarium Pacificum Staff, 1999; Oppenheimer, 2003). Recently, a seedling was collected on Kaho'olawe near the summit. No plantings of *G. robusta* are currently known from Kaho'olawe.

Material examined. **KAHO'OLAWA:** Moaulanui, west side of crater rim, single seedling seen and pulled, in association with *Heteropogon contortus* and *Neonotonia wightii*, 1400 ft [427 m], 07 Jun 2004, Starr, Starr, Higashino, & Bruch 040607-1.

Rubiaceae***Hedyotis corymbosa* (L.) Lam. New island record**

Hedyotis corymbosa (hedyotis) was previously reported from Kaua'i, O'ahu, Maui, and Hawai'i (Wagner *et al.*, 1999; Oppenheimer & Bartlett, 2002; Starr *et al.*, 2002). This small herb is now also known from Kaho'olawe where it was found in a high-traffic area near the summit. This collection represents a new island record for Kaho'olawe.

Material examined. **KAHO‘OLAWE:** Moaulanui, near summit, next to experimental pili grass bale planting, in association with *Heteropogon contortus* and *Chenopodium oahuense*, 1480 ft [450 m], 30 Apr 2004, *Starr, Starr, Higashino & Abbott 040330-2.*

Sapindaceae

***Dodonaea viscosa* Jacq.**

New island record

Dodonaea viscosa ('a'ali'i) was previously known from all the main islands except Kaho'olawe (Wagner *et al.* 1999). This hardy indigenous species is now also known from Kaho'olawe, where it has been planted and sown as seed during restoration efforts over the past couple decades and is now spreading well beyond those plantings.

Material examined. **KAHO‘OLAWE:** Moaulanui, near summit, D4 restoration area, very windswept, old plantings present with many seedlings and saplings in area, in association with *Melinis repens*, *Achyranthes splendens*, and *Casuarina equisetifolia*, 1400 ft [425 m], 27 Dec 2004, *Starr, Starr, Higashino & Price 041227-1.*

Scrophulariaceae

***Antirrhinum orontium* L.**

Range extension

Antirrhinum orontium (lesser snapdragon), was first collected in 2000 by Z.E. Ellshoff who noted, "from the area around Lae o Hikiula (Kuheia), more prevalent further inland" (Staples *et al.*, 2002).

Material examined. **KAHO‘OLAWE:** Pu'u Moaulaiki, 1300 ft [396 m], 30 Mar 2004, *Starr, Starr, & Tokishi 040330-5.*

Verbenaceae

***Citharexylum spinosum* L.**

New island record

Citharexylum spinosum (fiddlewood) was previously known from O'ahu and Maui (Herbarium Pacificum Staff, 1998; Starr *et al.*, 2002). This common street tree with foliage that turns orange in summer is now known from Moloka'i where it is widely cultivated and naturalized, especially in Kaunakakai, Ma'alehu, and Kaluako'i.

Material examined. **MOLOKA'I:** West Moloka'i, Kaluako'i, Kaka'ako Gulch, widely cultivated and naturalized in this area, in association with *Schefflera actinophylla*, *Cenchrus ciliaris*, and *Ficus microcarpa*, 65 ft [20 m], 16 May 2005, *Starr & Starr 050516-1.*

Clerodendrum buchananii* var. *fallax
(Lindl.) Bakh.

New naturalized record

[Syn. *Clerodendrum speciosissimum* van Geert]

Native to Malaysia and Indonesia, *Clerodendrum buchananii* var. *fallax* (java glorybower, pagoda flower) is an erect woody, evergreen shrub that is cultivated as an ornamental plant for its showy red flowers and shiny black fruit (Clay & Hubbard, 1977). In Hawai'i, it was previously mentioned by Wagner *et al.* (1999) as a garden escape on O'ahu. On Maui, this charismatic species was collected near Hamoa (*Flynn 257 BISH*) in 1987, and more recently was collected in the Kīpahulu vicinity, where it was spreading in disturbed, wet, lowland forests, in pastures, and along fencelines. This species is also spreading from cultivation via bird dispersed fruits on other Pacific Islands (PIER, 2005). *Clerodendrum buchananii* var. *fallax* can be distinguished by its scarlet flowers which are not fragrant and downy leaves that are round heart-shaped to 1 ft long (Neal, 1965). This collection represents a new naturalized record for the state of Hawai'i.

Material examined. **MAUI:** East Maui, Kīpahulu, in pasture and along fenceline, on young a'a in association with *Mangifera indica* and *Clerodendrum chinensis*, 125 ft [38 m], 18 May 2004, *Starr & Starr 040518-1.*

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