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New Hawaiian plant records for 2023

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Ongoing field work, collections, and research continue to produce new, previously unpublished distributional records for the Hawaiian flora. In this paper, six new naturalized records, three new state records, 25 new island records, and six range extensions are reported. Additionally, there are notes regarding 19 taxa that appear to be in the early stages of naturalization but thus far are best considered garden escapes or adventive. Some have been previously documented as naturalized or adventive on other islands.

A total of 59 taxa in 33 plant families are discussed; 39 are dicotyledonous angiosperms, 14 are monocots, five are pteridophytes, and a single gymnosperm is reported. Eight of the taxa are indigenous or a hybrid thereof. Collections were made on the islands of Lāna'i, Moloka'i, Maui, and Hawai'i. Information regarding the formerly known distribution of flowering plants is based on the *Manual of Flowering Plants of Hawai'i* (Wagner *et al*. 1990), *Hawai'i's Ferns and Fern Allies* (Palmer 2003), and information subsequently published in the *Records of the Hawaii Biological Survey*.

Voucher specimens are deposited at Bernice Pauahi Bishop Museum's *Herbarium Pacificum* (BISH), Honolulu, with duplicates at the National Tropical Botanical Garden (PTBG), Lāwa'i, Kaua'i. Some specimens are deposited at only one of the two facilities, or in other herbaria; only in these cases are herbarium acronyms cited.

Apocynaceae

Carissa macrocarpa (Eckl.) A. DC. **New island record**

Natal plum is commonly cultivated as a hedge, due to its thorns. The bright red fruit is edible, and while it is unclear exactly what is dispersing the seeds, it is slowly spreading into adjacent *Scaevola* Coastal Shrubland areas. Seedlings and immature plants are scattered across a broad area, and there appears to be no effort to control the spontaneous plants. Previously it was documented outside of cultivation on O'ahu (Lau & Frohlich 2012: 7) based on a single individual, also found in a coastal area but dominated by *Leucaena leucocephala*.

Material examined. **MAUI:** West Maui, Lahaina Distr, Honokahua, coastal zone near Hawea Pt, 12 m, 5 Mar 2023, *Oppenheimer H32301*.

Araceae

Caladium bicolor (Aiton) Vent. **New island record**

Recently reported from Puna and South Hilo Districts on Hawai'i Island (Resslar 2010), only a 1975 specimen from Puna was cited. This terrestrial aroid was collected on East Maui, where it is occasional in alien-dominated lowland wet forest along old trails and unpaved roads.

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Material examined. **MAUI:** East Maui, Hāna Distr, Mokulehua, N of Puʻu Hīnāʻi, 259 m, 14 Dec 2008, *Oppenheimer, J. Elliot, & T. Pierce H1208126*.

Monstera siltepecana Matuda **New naturalized record**

Not previously known as a naturalized species in Hawaiʻi, this aroid resembles climbing species of *Philodendron*. It differs from *Monstera deliciosa* Liebmann, which is commonly cultivated, in its mostly entire-margined leaves (vs. margins regularly pinnately divided in *M. deliciosa*). Staples & Herbst (2005: 606) separate the two species in their key by the leaves being perforated (as in *M. deliciosa*) or not (*M. siltepecana*), but the narrative for *M. siltepecana* notes that cultivated plants in Hawaiʻi have highly perforated leaves. Both are known as Swiss-cheese plant.

Material examined. **MAUI:** East Maui, Hāna Distr, Wailua, 67 m, 19 Nov 2005, *Oppenheimer H110508*.

Arecaceae

Phoenix sylvestris (L.) Roxb. **New naturalized record**

This spiny palm is known from the plains of India and Pakistan, where its sap is used fresh as a drink or processed into a dark sugar or alcoholic beverage (Barrow 1998). Its habitat ranges from the plains to the coast and includes sandy soil, wetlands, and waterlogged or seasonally inundated areas. This is consistent with the collection locality cited. Leaflets are concolorous with abaxial surfaces lacking ramenta or tannin-stained veins, up to 100 on each side of the rachis, irregularly arranged in more than one plane of orientation. It is also believed to hybridize with other species of *Phoenix*. Barrow (1998) provides a key to and descriptions of the species of *Phoenix* L.

Material examined. **MAUI:** East Maui, Wailuku Distr, Kanahā Pond Wildlife Sanctuary, 8 m, 29 Oct 2000, *Oppenheimer & F. Duvall H100048* (BISH).

Pinanga coronata (Blume ex Mart.) Blume **New island record**

This palm has already been documented to spread outside of cultivation on Oʻahu and Hawaiʻi (Daehler & Baker 2006: 5; Parker & Parsons 2012: 66). On Maui, it is naturalized and spreading onto slopes beyond plantings, with dozens to hundreds of seedlings observed beneath mature individuals.

Material examined. **MAUI:** East Maui, Hāna Distr, Keʻanae, 30 m, 11 Jun 2019, *Oppenheimer H61912.*

Asteraceae

Blainvillea gayana Cass. **New state record**

Native to the African continent, Cape Verde Islands, and Saudi Arabia, this rough-haired annual herb has been introduced to Queensland, Australia as well as Socotra. Placed in Tribe Heliantheae, it grows up to 2m tall, usually with opposite leaves, and small white disc and ray florets. Apparently it has been in Hawaiʻi for several years.

Material examined. **MAUI:** West Maui, Lahaina Distr, just inland from Lahaina on land to be developed as Leialiʻi, 12 Feb 2008, *W.A. Whistler s.n.* (BISH 1141179); Hāhākea Gulch, 400 m, 9 May 2008, *R.W. Hobdy 4291* (BISH); Hāhākea Gulch stream bottom, 200 m, 9 May 2008, *R.W. Hobdy 4292* (BISH); East Maui, Wailuku Distr, Kamaʻole ahupuaʻa, 354 m, naturalized shrubs to 1.75 m tall, erect or sprawling on intermittent stream banks, in pasture and degraded remnant *Erythrina* Dry Forest, 25 Feb 2011, *Oppenheimer, S. Perlman, & J.S. Meidell H21115*; **HAWAIʻI:** South Kohala Distr, Kawaihae, 50 m, 11 Apr 2008, *W.A. Whistler s.n.* (BISH 1141186); Puakō, mauka of Queen Kaʻahumanu Hwy, 10 Apr 2014, *R.W. Hobdy 4354* (BISH).

Helianthus annus L. **New island record**

Previously known from two collections on Hawai‘i Island (Wagner *et al.* 1990: 322), the common sunflower was recently found outside of cultivation on Maui. It is likely an escape from either a nearby sunflower farm, where it is grown to extract oil from the seeds as a biofuel, or from another site as an ornamental and visitor attraction.

Material examined. **MAUI:** West Maui, Wailuku Distr, Waikapū, near Honoapi‘ilani Hwy, 76 m, 31 Mar 2021, *Oppenheimer H32150.*

Pseudognaphalium attenuatum (DC.) Anderb. **New island record**

Previously documented from Hawai‘i Island (Herbst *et al*. 2004: 4), the specimen at PTBG was examined by Christopher Warneke of Michigan State University and determined to be this species, representing a new record for Maui. The Hawai‘i Island collection of this Mexican species was a new record for the United States.

Material examined. **MAUI:** East Maui, Makawao Distr, Kanaio NAR, occasional, terrestrial, erect herbs, 622 m, 22 Dec 2015, *Oppenheimer & M. Padgett H121503*.

Tetramolopium filiforme Sherff **New island record**

Two varieties of this federally listed Endangered species are recognized, both restricted to the Wai‘anae Range on O‘ahu (Wagner *et al*. 1990: 366). Previously, a specimen collected on Maui was erroneously identified as *T. capillare* (Gaudich.) H. St. John, probably based on geographic provenance (Herbst & Wagner 1996: 10). More material from this location and study of herbarium specimens at BISH show that Maui populations are a close but not perfect match for O‘ahu populations. Further examination may reveal them to represent an undescribed taxon. It is more similar to *T. filiforme* var. *polyphyllum* (Sherff) Lowrey than the nominate variety. The Maui populations grow in very wet *Metrosideros polymorpha* riparian habitat along perennial streams commonly associated with species of *Clermontia, Cyanea, Cyrtandra, Hillebrandia,* Urticaceae, and Hymenophyllaceae. Recently there has been a steep decline, with approximately 11 plants in Kaua‘ula (down from 60 just a few years ago), and less than 20 in Hāhākea. The Perlman specimen cited below was the basis for the rediscovery of *T. capillare* (Herbst & Wagner 1996: 10). Since no plants of that species have been observed since the early 1990s (S. Perlman, pers. comm.), it is presumed extinct.

Material examined. **MAUI:** West Maui, Lahaina Distr, Kaua‘ula Valley, 16 Sep 1993, *S. Perlman 13764* (BISH, NY, PTBG, US); *loc. cit.*, 890 m, about 100 plants on vertical cliff, from 1.75–8.00 m above base in open areas, often on moss- or lichen-covered basalt substrate, 2 Dec 2008, *Oppenheimer & S. Perlman H120803* (BISH); Hāhākea Gulch, rooted in cracks of light basaltic, vertical rock walls, 1.5–8.0 m above stream, 823 m, 23 Feb 2006, *Oppenheimer & C. Brosius H20622* (BISH); East Maui, Makawao Distr, Olinda Rare Plant Facility, 1074 m, cultivated, seeds originally from Kaua‘ula Valley, 12 Jul 2017, *Oppenheimer H71701* (BISH, PTBG, US); *loc. cit.*, seeds from Hāhākea Gulch, 12 Jul 2017, *Oppenheimer H71702*.

Athyriaceae

Athyrium haleakalae K.R. Wood & W.L. Wagner **New island record**

Described from specimens collected on windward Haleakalā (Wood & Wagner 2017), this diminutive fern of riparian zones was recently documented from Kaua‘i (Wood & Walsh 2022). Now it has also been collected in Kohala, Hawai‘i Island, where it was noted to be rare, with less than 10 individuals in a single population in wet forest growing on a ledge near a waterfall.

Material examined. **HAWAIʻI:** North Kohala Distr, Puʻu O ʻUmi NAR, 1,090 m, 15 Aug 2022, *Z. Pezzillo & E. Datlof 29* (BISH).

Bignoniaceae

Dolichandra unguis-cati (L.) Miers **New island record**

Cat's-claw climber is known from cultivation and to be sparingly naturalized on Kauaʻi, Oʻahu, Lānaʻi, Maui, and Hawaiʻi (Wagner *et al*. 1990: 388; Imada *et al*. 2000: 10; Oppenheimer & Bartlett 2000: 2; Starr *et al*. 2002: 18). Now it is documented from Molokaʻi.

Material examined. **MOLOKAʻI:** Kualapuʻu, climbing alien, roadside vegetation, 500 m, 18 Nov 2001, *Oppenheimer H110121*.

Brassicaceae

Lepidium bidentatum Montin

var. ***o-waihiense*** (Cham. & Schltdl.) Fosberg **Range extension**

Although Wagner *et al.* (1990: 406) report this herb from Kauaʻi, Oʻahu, Molokaʻi, Lānaʻi, Maui, and Hawaiʻi, Maui specimens at BISH and PTBG are all from Hāna District, East Maui. The following specimen documents this taxon from Mauna Kahalawai, West Maui, where it was locally common near the shoreline in *Scaevola* Coastal Shrubland with *Schiedea globosa* and other coastal species.

Material examined. **MAUI:** West Maui, Wailuku Distr, Makamakaʻole Stream, 32 m, 30 Jun 2022, *Z. Pezzillo & J. Tabura 18* (BISH).

Bromeliaceae

Neoregelia sp. **New naturalized record**

This bromeliad seems to be popular in cultivation as a ground cover, but it is universally reported as an epiphyte in its South American native range. It rarely- if ever- flowers in Hawaiʻi, so the identification is tentative. Inflorescences are reported to be small and included in the cup. It was collected from an apparently naturalized population, where a few plants were growing on a small cliff in *Metrosideros/Diospyros* Lowland Forest along a steep ledge, where it was well removed from any habitation. Leaves are red, plants spreading by stolons onto nearby steep slopes and into adjacent *ʻōhiʻa* trees. Offshoots, known as "pups" have been collected and although none have flowered yet after almost 10 years in cultivation, the leaf color can change and become green or green and red. There are 1000's of known cultivars.

Material examined. **MAUI:** West Maui, Wailuku Distr, ʻĪao Valley, SW of ʻĪao Needle above Kinihāpai Stream, 415 m, 10 Sep 2013, *Oppenheimer, K. Bustamente, & S. Perlman H91302* (BISH).

Caryophyllaceae

Scleranthus annuus L. **New state record**

Known as German knotweed or annual knawel, this small annual or biennial herb is native to Europe, Asia, and North Africa. It is a common weed in temperate areas, often in disturbed habitat, in the U.S., Central and South America, South Africa, Japan, India, and elsewhere. However, it apparently is in decline in its native range and is no longer present in many sites in Britain and Ireland, and is listed in the Great Britain Vascular Plant Red Data List as Endangered, and in Northern Ireland as a Priority Species. Plants were observed in Haleakalā Crater, as well as near the Park stable area and nursery, and were being controlled by Park staff by foliar herbicide application. It has been theorized that seed may have arrived as a contaminant in imported horse feed.

Material examined. **MAUI:** East Maui, Hāna Distr., Haleakalā Crater, along Halemauʻu Trail between ʻŌʻili Puʻu and Honokahua planting area, 2100 m, 3 May 2018, *P. Welton 2403* (BISH); Makawao Distr., Kalialinui, Haleakalā National Park baseyard, horse pasture, in kikuyu grass and evening primrose, 2,072 m, 7 May 2018, *P. Welton & B. Haus 2404*; *loc. cit.*, 9 May 2018, *P. Welton 2405* (BISH); *loc. cit.*, 2065 m, locally common weedy herb in disturbed subalpine shrubland, 14 June 2018, *Oppenheimer, P. Welton, & B. Haus H61803* (US).

Casuarinaceae

Casuarina cunninghamii Miq.

× ***C. glauca*** Sieber ex Spreng. **New island record**

Previously documented as spreading on Kauaʻi (Lorence *et al.* 1995: 31) and Maui (Oppenheimer & Bartlett 2002: 5), a recent specimen is now known from Lānaʻi.

Material examined. **LĀNAʻI:** Pālāwai basin, near nursery/piggery, 20 Mar 2007, *Oppenheimer, N. Tangalin, B. Plunkett, & S. Perlman s.n.* (BISH 731372).

Cibotiaceae

Cibotium* ×*heleniae D.D. Palmer **New island record**

Palmer (2003: 98) reported this natural hybrid of *C. chamissoi* Kaulf. and *C. menziesii* Hook. from both the Koʻolau and Waiʻanae Ranges on Oʻahu. He suspected it would be found on other islands as well. On Maui it was found growing with both parental species. *Cibotium chamissoi* seems to be uncommon on Maui.

Material examined. **MAUI:** West Maui, Wailuku Distr, Waiheʻe Valley, 785 m, 20 Jun 2016, *Oppenheimer & M. Padgett H61608*.

Costaceae

Costus guanaiensis Rusby **New naturalized record**

This species has not previously been documented as naturalized in Hawaiʻi. Apparently it is most similar to *C. g*. var. *macrostrobilus* (K. Schum.) Maas (D. Skinner, pers. comm. to T. Flynn, PTBG). Staples & Herbst (2005: 651) provided a key to *Costus* in Hawaiʻi and discuss this species (*ibid.*: 653). It is native to Puerto Rico, Mexico, Central America and South America.

Material examined. **MAUI:** East Maui, Hāna Distr, Hāhālawe Gulch, 104 m, 2 m tall herbs, forming thickets in open gullies, with *Hedychium*, flowers white, distal end tinged red, 17 Dec 2005, *Oppenheimer H120505.*

Cyperaceae

Oreobolus furcatus H. Mann **New island record**

Wagner *et al.* (1990: 1424) cites the distribution of this species as Kauaʻi, Oʻahu, Molokaʻi, and Maui. Apparently, specimens collected on Hawaiʻi Island as early as 1974 were overlooked or unavailable during the preparation of the *Manual*. It was also reported to occur at several sites south of the Saddle Road between 1400 m and 1700 m asl (Clarkson 1992).

Material examined. **HAWAIʻI:** Kaʻū Distr, Kaʻū Forest Reserve, Kahuku Ranch, about 1,829 m, 19 Sep 1974, *D. Herbst & G. Spence 5043* (HAW); South Hilo Distr, Kaulana Manu Nature Trail, common along edge of kīpuka, 1665 m, 17 Aug 2022, *Z. Pezzillo & E. Datlof 30* (BISH).

Schoenoplectiella mucronata (L.)
J. Jung & H.K. Choi **New island record**

Known from tropical Africa, southern Europe to southern Asia, Japan, Malesia, the Philippine Islands, and Australia, and naturalized in the United States, Strong & Wagner (1997: 47) documented the first Hawaiian record of this species on Hawai‘i Island (as *Schoenoplectus mucronatus* (L.) Pallas). In a recent revision (Shiels *et al.* 2014) this taxon was transferred to *Schoenoplectiella*. The collection cited here documents this taxon on Maui.

Material examined. **MAUI:** East Maui, Hāna Distr, Kopili‘ula Stream, 366 m, upstream of Hāna Hwy, 4 Jan 2023, *Oppenheimer & K. Bustamente H12305* (BISH, PTBG, US).

Fabaceae

Aeschynomene falcata (Poir.) DC. **New naturalized record**

Australian joint-vetch is native to Argentina, Bolivia, Brazil, Colombia, and Paraguay, and naturalized in eastern Australia. Previously, Hughes (1995: 5) documented *A. paniculata* Willd. ex Vogel as a naturalized species in the Hawaiian Islands, also from the island of Moloka‘i. The identification of the specimen cited here is tentative, and may instead represent *A. elegans* Schltdl. & Cham., which is native to South and Central America. More collections will help clarify which taxon or taxa are represented.

Material examined. **MOLOKA‘I:** Pūniu‘ōhua 2, 390 m, common in pastures, flowers yellow, open in morning, 10 Aug 2006, *Oppenheimer H80604*.

Stylosanthes guianensis (Aubl.) Sw.
var. ***guianensis*** **New island record**

Herbst *et al.* (2004: 7) first documented this taxon from Kaua‘i, but included a voucher from Moloka‘i taken from plants cultivated at the USDA Plant Materials Center in Ho‘olehua. It was uncertain at the time if it was naturalized on the island. The following collection documents this taxon from Moloka‘i.

Material examined. **MOLOKA‘I:** Lūpehu, 330 m, sprawling to ascending subshrubs, woody at base, in degraded forest at edges of pastures and unpaved roads, 7 Nov 2007, *Oppenheimer H110718*.

Vicia sativa L. subsp. ***nigra*** (L.) Ehrh. **Range extension**

Common vetch has been documented from Kaua‘i (Wood 2007: 15), East Maui, and Hawai‘i (Wagner *et al.* 1990: 717). The following collections document a range extension to Mauna Kahalawai, West Maui.

Material examined. **MAUI:** Wailuku Distr, vicinity of Pu‘u Anu, along unpaved road, 914 m, 12 May 2020, *Oppenheimer H52007*; Lahaina Distr, near Manawainui, 914 m, along unpaved road, 21 May 2020, *Oppenheimer, K. Bustamente, & K. Kaiakala H52007*.

Vigna hosei (Craib) Backer **New island record**

Sarowak bean has been previously documented from O‘ahu (Staples *et al,* 2006: 7) and Hawai‘i (Pratt & Bio 2012: 77). Now it is known from East Maui, where it was locally common.

Material examined. **MAUI:** East Maui, Makawao Distr, Kaupakulua ahupua‘a, west side of Uaoa Bay, near ‘Ōpana Pt, 49 m, locally common vines in grassy pasture, flowers yellow, 28 Jul 2021, *Oppenheimer H72112.*

Lamiaceae

Mesosphaerum suaveolens (L.) Kuntze **New island record**

[syn.: *Hyptis suaveolens* (L.) Poir.]

Widely naturalized and in Hawai‘i cultivated by Filipino laborers for medicinal use and as food flavoring, this herb has been reported from the islands of O‘ahu, Maui, and Hawai‘i (Wagner *et al.* 1990: 802; Wagner & Herbst 1995: 22; Starr *et al.* 2006: 36; Oppenheimer 2008: 29). The change in name was reported by Imada (2019: 119).

Material examined. **LĀNA‘I:** Palawai Basin, around abandoned structures, vicinity of Pāwili and Palikoa‘e Gulch, 400 m, herbs to 1 m+ tall, sparingly branched, 30 Nov 2022, *Oppenheimer, K. Bogner, & Z. Pezzillo H112216.*

Linderniaceae

Torenia asiatica L. **New island record**

[syn: *Torenia glabra* Osbeck]

Formerly placed in Scrophulariaceae and documented as naturalized in Hawai‘i from the island of Hawai‘i (Wagner *et al.* 1990: 1246), this annual herb, known as ‘Ōla‘a beauty or *nani-o-‘Ōla‘a*, is now known from similar lowland wet habitats on Maui.

Material examined. **MAUI:** Hāna Distr, Nāhiku, west of Kahawaihapapa, 268 m, herbs, decumbent to sprawling in disturbed understory on flower farm, flowers blue/purple, 31 May 2019, *Oppenheimer H51915*; 4 km W of Wai‘ānapanapa State Park, 173 m, 23 Oct 2022, *K. Faccenda 2749* (BISH).

Malvaceae

Hibiscus furcellatus Desr. **Range extension**

Native in low elevations in the West Indies, Florida, Central and South America, and apparently also in Hawai‘i (Wagner *et al.* 1990: 885), the local range of *Hibiscus furcellatus* was reported as Kaua‘i, O‘ahu, Moloka‘i, Maui, and Hawai‘i. There have been no collections from Mauna Kahalawai (West Maui) until now (C. Imada, pers. comm.; T. Flynn, pers. comm). A small but dense stand comprised of approximately 100 plants appeared after the site was cleared of alien vegetation as part of a restoration project (D. Sparkman, pers. comm.).

Material examined. **MAUI:** West Maui, Lahaina Distr, Olowalu Valley, N side of stream, 61 m, 26 Aug 2022, *Oppenheimer H82202*.

Hibiscus ovalifolius (Forssk.) Vahl **New island record**

[syn.: *Hibiscus calyphyllus* Cav.]

Naturalized in low elevation, dry areas on Kaua‘i (Wagner *et al.* 1990: 884), a small population was recently found on Maui in similar habitat. Staples *et al.* (2003: 14) reported the taxonomic change.

Material examined. **MAUI:** West Maui, Lahaina Distr, Honokahua, 244 m, sprawling 1.0–1.5 m tall patch approximately 500 m², 12 Mar 2023, *Oppenheimer H32334.*

Myrtaceae

Eucalyptus obliqua L’Hér. **New state record**

This was the first *Eucalyptus* species ever described. It was collected on Captain Cook’s third voyage by David Nelson in Tasmania. Known all messmate stringybark, it has grey to brown fissured bark; leaves are concolorous, asymmetrical; flowers white; capsules are barrel-shaped to globose, with 3-4 valves included just below the rim (Euclid, accessed

January 2024). Skolmen (1980: 186) lists only 4 trees of this species being planted in Hawai‘i, on Hawai‘i Island at Humu‘ula in the Mauna Kea Forest Reserve in 1958.

Material examined. **LĀNA‘I:** Ka‘ohai, Lōpā Gulch, vicinity of Pu‘u Nēnē, 530 m, common trees, bark rough, grayish, spreading from plantings with *E. robusta,* 3 Apr 2019, *Oppenheimer & K. Bogner H41904* (BISH).

Eucalyptus sideroxylon A. Cunn. ex Woolls subsp. ***sideroxylon*** **New island record**

Red ironbark was reported as planted on the islands of Kaua‘i, O‘ahu, Moloka‘i, and Maui, and regenerating both within and near the plantations (Wagner *et al.* 1990: 958). This is the first record for Lāna‘i.

Material examined. **LĀNA‘I:** Paoma‘i, between Hawai‘ilānui and Kahue Gulches, 520 m, trees spreading locally from plantings, bark rough and furrowed, 18 Apr 2019, *Oppenheimer, K. Bogner, M. Keir, & M. Walker H41909* (BISH).

Nephrolepidaceae

Nephrolepis* ×*medlerae W.H. Wagner **New island record**

Palmer (2003: 193–194) reported this hybrid between an endemic taxon (*N. exaltata* (L.) Schott subsp. *hawaiiensis* W.H. Wagner) and an introduced species (*N. multiflora* (Roxb.) F.M. Jarrett ex C.V. Morton) only on O‘ahu. It also occurs on Maui, and is likely more widespread. *Nephrolepis multiflora* is now treated as *N. brownii* (Desv.) Hovenkamp & Miyam. (Hovenkamp & Miyamoto 2005: 293).

Material examined. **MAUI:** East Maui, Makawao Distr, Kailua Stream, E tributary, 866 m, 28 Mar 2007, *Oppenheimer, S. Perlman, & N. Tangalin H30726*.

Phyllanthaceae

Phyllanthus leucanthus Pax **New island record**

Recently reported as naturalized on Kaua‘i, O‘ahu, Maui, and Hawai‘i (Faccenda 2023a: 7), this weedy herb is now also known from Lāna‘i. It was noted to be locally common, with hundreds of plants observed on the island.

Material examined. **LĀNA‘I:** Palawai Basin, around abandoned structures, vicinity of Pāwili and Palikoa‘e Gulch, 400 m, 30 Nov 2022, *Oppenheimer, K. Bogner, & Z. Pezzillo H112217*; Lāna‘i City, weed in garden bed, 21 Jun 2023, *K. Faccenda 3165* (BISH).

Pinaceae

Pinus pentaphylla Mayr **New naturalized record**

Japanese white pine, or *goyomatsu*, is used for bonsai (Staples & Herbst 2005: 71). It differs from other species introduced to Hawai‘i by its unscented needles in bundles of 5. Richardson & Rejmánek (2004) reported the Pinaceae as having the highest percentage of invasive taxa, compared to other woody families. Skolmen (1980) does not list this species as being planted in forest reserves in Hawai‘i.

Material examined. **MOLOKA‘I:** Kikiakalā, 935 m, 25 Sep 2008, *Oppenheimer H90818* (BISH).

Piperaceae

Peperomia cookiana C. DC. **New island record**

This endemic herb is known from Kaua‘i, Moloka‘i, Maui, and Hawai‘i (Wagner *et al.* 1990: 1022). More recently it was documented from O‘ahu (Imada & Kennedy 2019: 78–

79). It was found on Lānaʻi growing as both a low epiphyte and on a small waterfall along an intermittent stream.

Material examined. **LĀNAʻI:** Hauʻola Gulch, 950 m, 26 Sep 2018, *Oppenheimer & K. Bogner H91801*; Hauʻola Gulch, along main stream, 850 m, 11 Aug 2021, *Oppenheimer, K. Bogner, & A. Jaquemin H82106, H82107* (BISH).

Plantaginaceae

Veronica peregrina L. subsp. ***xalapensis*** (Kunth) Pennell **Range extension**

Necklace weed has been previously placed in Scrophulariaceae and reported from Hawaiʻi (Wagner *et al.* 1990: 1250), Kauaʻi (Lorence *et al.* 1995: 54), and East Maui (Starr *et al.* 2002: 25). It was found on West Maui growing in an agricultural area.

Material examined. **MAUI:** West Maui, Lahaina Distr, Honokahua, between Kahauiki and Honolua, 91 m, 29 Feb 2020, *Oppenheimer H22005*.

Poaceae

Botriochloa barbinodis (Lag.) Herter **New island record**

Fuzzy Top has been previously documented as naturalized on Niʻihau, Oʻahu, Molokaʻi, East Maui, and Hawaiʻi (Wagner *et al.* 1990: 1502; Starr *et al.* 2006: 38). Now this grass is also known from Lānaʻi.

Material examined. **LĀNAʻI:** Kuamoʻo Ridge, 300 m, in degraded *Dodonaea* Lowland Dry Shrubland, 20 Apr 2011, *Oppenheimer H41107*; Kaʻa, vicinity Kapukaloa, 540 m, occasional in dry, disturbed areas in degraded *Dodonaea* Lowland Dry Shrubland, 11 Oct 2018, *Oppenheimer, M. Kier, & K. Bogner H101810* (BISH).

Eragrostis curvula (Schrad.) Nees **Range extension**

Previously reported from Oʻahu, Kahoʻolawe, and East Maui (Herbst & Clayton 1998: 26; Oppenheimer 2003: 20), and recently reported from Molokaʻi, Lānaʻi, and Hawaiʻi (Faccenda 2023b), this lovegrass also occurs on West Maui.

Material examined. **MAUI:** Wailuku Distr, ʻĪao Valley, gulch E of Needle, occasional on talus slope below cliff, 518 m, 9 Feb 2016, *Oppenheimer & M. Padgett H21609* (BISH).

Hyparrhenia rufa (Nees) Stapf **Range extension**

Thatching grass was reported as naturalized on Kauaʻi, Oʻahu, Molokaʻi, Maui, and Hawaiʻi (Wagner *et al.* 1990: 1554). At the time all the Maui specimens had been collected on East Maui. The following voucher documents this species from West Maui. Herbst & Clayton (1998: 28) provided a key to the species known to be naturalized in Hawaiʻi.

Material examined. **MAUI:** Lahaina Distr, N of Wahikuli Gulch, 658 m, locally common in open areas, along unpaved roads, trails, and disturbed/degraded lowland dry shrubland, 6 Dec 2018, *Oppenheimer & D. Tanaka H121801*.

Sporobolus diandrus (Retz.) P. Beauv. **New island record**

Documented from the islands of Kauaʻi, Oʻahu, and Hawaiʻi (Wagner *et al*. 1990: 1596; Lorence & Flynn 1997: 11) (as *S. diander*), this grass is now known to occur on Maui, where it is occasional in low elevation, disturbed lawns and agricultural areas.

Material examined. **MAUI:** Hāna Distr, Honomāʻele, 20 m, clumping grass, occasional in lawn, 2 Sep 2014, *Oppenheimer, K. Bustamente, C. Lum, & R. Lee H91401* (BISH); Nānuʻalele, north side of Hāna Bay, 3 m, sparingly naturalized in disturbed coastal site, 16 Jul 2018, *Oppenheimer, F. Duvall, & S. Hau H71808* (BISH); Hāna, intersection of highway and Uakea Rd, 35

m, 23 Oct 2022, *K. Faccenda 2744* (BISH); E of Waiʻānapanapa, 53 m, 23 Oct 2022, *K. Faccenda 2772* (BISH); Makawao Distr, Kanaio, 488 m, in *Dodonaea* Dry Shrubland, 14 Nov 2017, *Oppenheimer, A. Lau, D. Frohlich, & J. Breeden H111712*.

Pteridaceae

Doryopteris subdecipiens W.H. Wagner **New island record**

Possibly a hybrid, *Doryopteris subdecipiens* is intermediate between the endemic *D. decipiens* (Hook.) J. Sm. and *D. decora* Brack. (Palmer 2003: 133; W.H. Wagner *et al*. 1999: 146–152), and known from isolated populations in dry to mesic, rocky, exposed sites on Kauaʻi, Oʻahu, Lānaʻi, Maui, Kahoʻolawe, and Hawaiʻi. On Molokaʻi in mesic shrubland it is at least locally common following significant reductions in the feral goat population, with fronds reappearing during the wet season.

Material examined. **MOLOKAʻI:** East Kawela, unnamed gulch to E of road to Puʻu Kolekole Cabin, E of East Kawela Gulch, 820 m, common terrestrial fern on rocky substrates, on slopes and gulch bottom, 2 Apr 2009, *Oppenheimer & A. Bakutis H40906* (BISH).

Rosaceae

Rosa laevigata Michx. **New island record**

Cherokee rose was first documented as naturalized in Hawaiʻi by Nagata (1995: 12), citing a specimen from the summit of Lānaʻi. Pūlama Lānaʻi has been working to eradicate this thorny species (K. Bogner, pers. comm.). It has also been documented from Hawaiʻi Island (Parker & Parsons 2012: 61) and Oʻahu (Frohlich & Lau 2014: 14), and more recently Kauaʻi (Brock *et al.* 2023: 139). Here it is reported for the first time as naturalized on Maui, where it forms a dense thicket that is sprawling down a cliff into a nearby gulch. What is likely this taxon has been observed during helicopter reconnaissance on Mauna Kahalawai (West Maui), but specimens have not yet been collected.

Material examined. **MAUI:** East Maui, Makawao Distr, 1250 m, between Kailua and Kahakapao Gulches, locally naturalized sprawling, vining, or climbing shrubs, flowers white, fragrant in late afternoon, may not open until afternoon, 24 Apr 2020, *Oppenheimer H42001*.

SPECIES SHOWING SIGNS OF NATURALIZATION

Amaryllidaceae

Hymenocallis pedalis Herb.

This large herb was observed to be escaping beyond its cultivated plantings into nearby shady lawns, pastures, and waste areas. It has also been observed, but not collected, spreading locally beyond plantings in Hāna District, Maui.

Material examined. **MOLOKAʻI:** N coast of E Molokaʻi, Wailau Valley, rocky flat above beach near old habitation, 4 Jul 1933, *Fosberg 9668* (BISH); S bank of Pāpio Gulch, 200 m, 7 Nov 2007, *Oppenheimer H110722* (BISH).

Asteraceae

Cosmos sulphureus Cav.

This annual has been collected at least twice outside of cultivation. The Lahaina collection was made near Honoapiʻilani Highway, and an adjacent resident who had it under cultivation stated that the roadside individual was not planted and that it volunteers in nearby lots and yards, with the wind dispersing the seeds. Plants are usually unbranched, up to 1 m tall, with orange flowers.

Material examined. **MAUI:** West Maui, Lahaina Distr, Wahikuli, 3 m, 3 Dec 2000, *Oppenheimer H120001* (BISH); Wailuku Distr, along Route 30 between Māʻalaea and Ukumehame, mile marker 9 west of scenic lookout, 31 m, 8 Feb 2004, *Oppenheimer H20401* (BISH).

Gerbera jamesonii Adlam

This small, tap-rooted herb was found amongst planted conifers in a grassy area. The ray florets are pink. It did not appear to be cultivated nearby.

Material examined. **MAUI:** East Maui, Makawao Distr, Olinda, 1128 m, 6 Apr 2002, *Oppenheimer, F. Duvall, & L. Nelson H40204* (BISH).

Tagetes erecta L.

A single 75 cm tall plant with bright orange, fragrant flowers was found growing along a weedy roadside.

Material examined. **MAUI:** East Maui, Makawao Distr, ʻŌmaʻopio, 91 m, 16 Mar 2002, *Oppenheimer H30214* (BISH).

Begoniaceae

Begonia cf. 'Lucerna'

Of hybrid origin, this is one of the most popular of the so-called cane-stem begonias. Staples & Herbst (2005: 175) include this hybrid in their key and provide a description.

Material examined. **MAUI:** East Maui, Hāna Distr, Honolulunui, 61 m, terrestrial shrubs/herbs, growing in shady, wet *Ardisia elliptica* forest, flowers red, possibly naturalized, 16 Nov 2012, *Oppenheimer & S. Perlman H111219* (BISH).

Bignoniaceae

Tabebuia aurea (Silva Manso) Benth. & Hook. ex S. Moore

This yellow-flowered tree was escaping into nearby fallow pineapple fields, where many seedlings and saplings up to 2 m tall were observed up to 25 m downwind of the parent tree. It is a popular street tree, and seedlings are commonly observed in areas downwind from cultivated trees where there is sufficient irrigation and infrequent weed control.

Material examined. **MAUI:** West Maui, Lahaina Distr, Honokahua, 82 m, 12 May 2001, *Oppenheimer H50107*.

Caryophyllaceae

Lampranthus amoenus (Salm-Dyck) N.E. Br.

This sprawling succulent was found in a site where it was unlikely to be under cultivation. Two large, tangled clumps with purple flowers were observed in *Scaevola* Coastal Shrubland.

Material examined. **MAUI:** West Maui, Lahaina Distr, Hāwea Pt, 8 m, 6 May 2004, *Oppenheimer & G. Hansen H50402*.

Fabaceae

Strongylodon macrobotrys A. Gray

Jade vine is commonly used in lei. In Hāna District, single individual vines were observed sprawling in secondary alien-dominated forest where it appeared unlikely to be under cultivation, or near former residences. A few seeds pods were also observed, but seeds were not tested for viability.

Material examined. **MAUI:** East Maui, Hāna Distr, Nāhiku, Kālepalehua Gulch, 70 m, large vines, inflorescence pendent, flowers green/blue when fresh but drying blue, in dense shade of secondary forest, 31 May 2019, *Oppenheimer H51914*.

Iridaceae

Neomarica gracilis (Herb.) Sprague

The walking iris was observed spreading vegetatively beyond its plantings. It spreads via rhizomes as well as plantlets on the tips of the leaves, which root when the leaves age and touch the ground. It also appeared to be setting seeds, although none were collected and propagated to test their viability.

Material examined. **MAUI:** West Maui, Lahaina Distr, Honolua Valley, 250 m, 19 Mar 2002, *Oppenheimer & E. Romanchak H30215*.

Lamiaceae

Mentha* ×*piperita L.

Peppermint is widely cultivated but is a sterile hybrid not producing any seeds, and is propagated vegetatively (Staples & Herbst 2005: 357).

Material examined. **MOLOKA'I:** Wailau Valley, 90 m, originally cultivated, now escaped and common in muddy and/or rocky sites nearby, flowers purple, 11 Oct 2009, *Oppenheimer & S. Perlman H100905* (BISH).

Perilla frutescens (L.) Britton

Chiso is an aromatic herb used to garnish sushi platters. It was collected along a rocky, intermittent stream in alien-dominated forest, as well as observed in nearby sidewalk cracks. The collection was a purple-leaved form; others apparently can be green.

Material examined. **HAWAI'I:** South Hilo Distr, Waiākea Stream, 37 m, 2 Aug 2001, *Oppenheimer H80104* (BISH).

Malvaceae

Hibiscus acetosella Welw. ex Hiern

The red-leaved hibiscus is native to Africa and includes both green- and red-leaved forms. Apparently, only the red-leaved form is cultivated in Hawai'i. It is propagated by cuttings or seeds and can be grown in most habitats except oceanfront, but thrives in hot, sunny places sheltered from the wind (Staples & Herbst 2005: 388). On Maui it is noted as a garden escape that could become naturalized if grown in suitable habitat.

Material examined. **MAUI:** West Maui, Lahaina Distr, Olowalu, 3 m, in abandoned field near where a small nursery was located, 15 Dec 2004, *R.W. Hobdy 4196* (BISH); Kahana, 12 m, cultivated, but a garden escape, 14 Nov 2005, *Oppenheimer H110506*.

Hibiscus hastatus L. f.

This species was found growing amongst *H. tiliaceus* L., and potentially will hybridize with it. It is native to India and differs from *H. tiliaceus* by its unevenly 3-lobed leaves, the terminal lobe twice as long as the lateral lobes; the petals as well are lobed at their apex.

Material examined. **MAUI:** East Maui, Hāna Distr, Nānu'alele, N side of Hāna Bay, in coastal area, 3 m, trees to 6 m tall, 16 Jul 2018, *Oppenheimer, F. Duvall, & S. Hau H71807* (BISH).

Pedaliaceae

Sesamum orientale L.

Sesame is a short-lived annual herb common in the culinary arts and in baked goods. The specimen was made near a grocer, where leftovers from the kitchen may have been discarded in a landscaped hedge of *Hibiscus*. It has apparently been observed near bakeries on Oʻahu (G. Staples, pers. comm.).

Material examined. **MAUI:** West Maui, Wailuku Distr, Kahului, 8 m, 3 Jun 2000, *Oppenheimer H60010* (BISH).

Phyllanthaceae

Breynia androgyna (L.) Chakrab. & N.P. Balakr.

[syn.: *Sauropus androgynus* (L.) Merr.]

Reported as naturalized on Oʻahu (Frohlich & Lau 2008: 5), a single plant obviously not under cultivation was found on East Maui. This species has been reported to be dioecious and propagated by seed (*ibid.*); however, Staples & Herbst (2005: 296) state that the flowers are unisexual, with both male and female flowers borne on the same plant. The change in name was reported by Imada (2019: 137).

Material examined. **MAUI:** East Maui, Hāna Distr, lower Nāhiku, Honolulunui, 61 m, single shrub 2 m tall in shady, wet *Ardisia elliptica* forest along trail, flowers red or yellow, possibly naturalized, 16 Nov 2012, *Oppenheimer & S. Perlman H111220.*

Scrophulariaceae

Leucophyllum frutescens (Berland.) I.M. Johnst.

This ornamental shrub, known as Texas Ranger, is native to Texas and adjacent northern Mexico (Staples & Herbst 2005: 527). It has silvery/gray hairy foliage and rose-purple flowers. It has been found growing in a couple of sites where it is obviously not under cultivation.

Material examined. **MAUI:** Lahaina Distr, Honokahua, in *Scaevola* Coastal Shrubland, 18 m, 18 Aug 2012, *Oppenheimer H81227* (BISH); *loc. cit.*, 19 May 2019, *Oppenheimer H51913*; Wailuku Distr, between Māʻalaea Bay and McGregor Pt along roadside, 30 m, 16 Mar 2016, *Oppenheimer H31920*.

Selaginellaceae

Selaginella pallescens (C. Presl) Spring

This spikemoss was found spreading from its original planting, which was used as a groundcover. Native to Mexico and known as “leather fern,” the fronds are erect and arranged in a shuttlecock fashion.

Material examined. **MAUI:** East Maui, Makawao Distr, Waiohuli, 914 m, 25 Jan 2003, *Oppenheimer & E. Romanchak H10303* (BISH).

Urticaceae

Pilea cadierei Gagnep. & Guillaumin

Cultivated for its attractive variegated foliage (Whistler 2000: 361), this species was observed in an area obviously not under cultivation.

Material examined. **MAUI:** East Maui, Hāna Distr, Honolulunui, 61 m, growing in dense shade of wet *Ardisia elliptica* forest, adaxial leaf surface with silvery white bands, 16 Nov 2012, *Oppenheimer & S. Perlman H111218*.

Pilea serpyllacea (Kunth) Liebm.

Similar to but much larger than *P. microphylla* (L.) Liebmann, this species is used as a border plant in landscaping (Whistler 2000: 363). It was observed growing with weedy *P. microphylla* and spreading locally.

Material examined. **MAUI:** Wailuku Distr, ʻĪao Valley, Kepaniwai Park, 213 m, apparently spreading from plantings in landscaping, 19 Jun 2023, *Oppenheimer H62336.*

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