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New Hawaiian plant records for 2018[1]

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Ongoing field work, collections, and research continue to produce new, previously unpublished distributional records for the Hawaiian flora.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, two new naturalized records, 14 new island records, two range extensions, and one notable rediscovery are reported. Additionally, seven taxa are reported as adventive and showing signs of naturalization. A total of 25 taxa in 16 plant families are discussed. One taxon is endemic, and another is possibly indigenous; the remainder are introduced. Collections cited were made on the islands Moloka'i, Maui, and Hawai'i. Information regarding the formerly known distribution of flowering plants is based on the *Manual of the Flowering Plants of Hawai'i* (Wagner *et al.* 1999) and information subsequently published in the *Records of the Hawaii Biological Survey*.

Voucher specimens are deposited at the Bernice Pauahi Bishop Museum *Herbarium Pacificum* (BISH), Honolulu, with duplicates at the National Tropical Botanical Garden (PTBG), Lāwa'i, Kaua'i. A few specimens may be at only one or more facilities; only in these cases will the herbarium acronym be cited.

Amaranthaceae

Gomphrena globosa L. **New island record**

Cultivated and escaping in many parts of the world, this annual herb has been previously documented from Kaua'i and O'ahu (Wagner *et al*. 1999: 192; Lorence *et al*. 1995: 21). On Maui it was collected in a weedy, neglected area next to a paved parking lot, growing with *Cleome gynandra*.

Material examined. **MAUI**: East Maui, Makawao Distr, Pā'ia, 11 m, 5 Oct 2010, *Oppenheimer #H101005* (BISH).

Amaryllidaceae

Zephyranthes grandiflora Lindl. **New island record**

Previously documented from Lāna'i (Oppenheimer 2011: 8), the large pink rain lily was found in an overgrazed area on Maui, where it is ephemeral, depending on rainfall.

Material examined. **MAUI**: East Maui, Wailuku Distr, Kēōkea, SE of Pu'u o Kali, 686 m, 25 Nov 2013, *Oppenheimer, K. Bustamente, L. Kia, & K. Marchello #H111321*.

Araceae

Xanthosoma robustum Schott **New island record**

Known from Kaua'i, O'ahu, Maui, and Hawai'i (Staples & Woolliams 1997: 13; Imada *et al*. 2000: 10; Oppenheimer & Bartlett 2000: 2), this aroid was collected outside of cultivation on Moloka'i, where it is sparingly naturalized.

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Material examined. **MOLOKA‘I**: Kaunakakai, near forestry barracks, 650 m, 2 Apr 2009, *Oppenheimer H40914* (BISH).

Asteraceae

Cirsium arvense (L.) Scop. **New state record**

This thistle was found growing along with *C. vulgare* (Savi) Ten. along a disturbed trail in subalpine shrubland and forestry plantings of *Pinus* spp.

Material examined. **MAUI**: East Maui, Makawao Distr, ‘Alae, Kula FR, Waiakoa Trail, 1890 m, 13 Jun 2016, *Oppenheimer & M. Padgett #H61605*.

Gazania rigens (L.) Gaertn. **New naturalized record**

Native to South Africa and known as treasure flower in the horticultural trade, this herb is also naturalized in Australia (Wikipedia, accessed 2016/12/23). Three named varieties are accepted; the specimens have not been assigned to any of them.

Material examined. **MAUI**: East Maui, Makawao Distr, Kēōkea, locally common, mat forming, low-growing herb naturalized in lawns, flowers yellow, forms dense patches and spreads by runners, 908 m, 2 Apr 2016, *Oppenheimer #H41601.*

Leucanthemum x***superbum*** (J.W. Ingram) D.H. Kent **New island record**

Previously recorded from Hawai‘i Island (Pratt & Bio 2012: 75), this ornamental was found in a disturbed area and likely colonized after a large wildfire in 2007. It has been observed to be under cultivation several miles away at lower elevation.

Material examined. **MAUI**: East Maui, Makawao Distr, Waiohuli, Kula FR, below the unpaved road, 2026 m, 25 Nov 2015, *Oppenheimer & M. Padgett #H111504*.

Begoniaceae

Begonia cucullata Willd. **New island record**

This begonia was first documented as a naturalized species in the Hawaiian Islands from Kaua‘i and Hawai‘i in secondary, alien vegetation (Lorence *et al*. 1995: 25). This is consistent with its occurrence on Moloka‘i.

Material examined. **MOLOKA‘I**: Wailau Valley, escaped from cultivation into rocky sites, leaves succulent, 90 m, 11 Oct 2009, *Oppenheimer & S. Perlman #H100907.*

Begonia fusca Liebm. **New island record**

Cultivated since at least the 1930s and found naturalized on Kaua‘i and O‘ahu (Miller & Staples 2003: 22), it was speculated that other populations may occur on other islands as well. This begonia is now known from Maui.

Material examined. **MAUI**: East Maui, Hāna Distr, N of Kawaipapa Stream, 61 m, 25 Jan 2013, *Oppenheimer & S. Perlman #H11306*.

Brassicaceae

Lepidium oblongum Small **Range extension**

Known from Ni‘ihau, Kaua‘i, O‘ahu, Moloka‘i, Lāna‘i, East Maui, and Hawai‘i (Wagner *et al*. 1999: 407; Lorence *et al*. 1995: 26; Starr *et al*. 2006: 33), this peppergrass was collected on West Maui in dry shrubland dominated by native species.

Material examined. **MAUI**: West Maui, Lahaina Distr, Olowalu Valley, SE slope below ‘Ula‘ula, 549 m, 4 Feb 2009, *Oppenheimer & S. Perlman #H20910*.

Bromeliaceae

Guzmania monostachia (L.) Rusby ex Mez **New island record**

First reported as an epiphyte on O‘ahu (Frohlich & Lau 2010: 7), this species was found on Maui on a cliff in *Metrosideros/Diospyros* lowland forest, where it was obviously not under cultivation.

Material examined. **MAUI**: West Maui, Wailuku Distr, ‘Īao Valley, SW of ‘Īao Needle above Kinihāpai Stream, 415 m, 10 Sep 2013, *Oppenheimer, K. Bustamente, & S. Perlman #H91301* (BISH).

Cucurbitaceae

Sicyos hillebrandii H. St. John **Notable rediscovery**

This species was first collected in Kula, Maui by William Hillebrand, possibly accompanied by John M. Lydgate (Wagner & Shannon 1999), and described as a new species, *Sicyos laciniatus* Hillebr. Unfortunately, though, Hillebrand’s name turned out to be illegitimate, as Linnaeus had previously published the binomial *S. laciniatus* to describe a species from Mexico and Arizona, New Mexico, and Texas in the American southwest. Harold St. John corrected the error by renaming the Hawaiian material *S. hillebrandii* H. St. John (St. John 1934). The holotype specimen at B was presumably destroyed during World War II, with isotypes at BISH & K (K not seen). In 1995, Warren Wagner confirmed the type status of the BISH specimen and its identity as *S. hillebrandii*. Wagner *et al*. (1999: 577) presumed it was extinct. Recently, however, populations have been rediscovered in disturbed areas in Kula, Maui, where Hillebrand and Lydgate made their original collections. Research at various herbaria have brought to light other collections on Maui. Most of the Maui populations, save one, have been extirpated, succumbing to deer, goats, pigs, alien vegetation (especially *Neonotonia wightii*), drought, slugs, and urban development.

Material examined. **MAUI**: East Maui, Makawao Distr, Kula, Waiho, no date, *W. Hillebrand s.n.* (BISH 501821); Kula, Harry Hashimoto Farm, 23 May 2002, *L. Fujitani s.n.* (BISH 689778, 689780); Ka‘ono‘ulu, mauka of Rice Park, large vines sprawling over cultivated *Bougainvillea* hedge and climbing 5 m into cultivated *Acacia koa*, 914 m, 3 Feb 2009, *Oppenheimer & S. Perlman #H20908*; *loc. cit.,* 7 Mar 2009, *Oppenheimer #H30901*; *loc. cit.,* 23 Jun 2014, *R.W. Hobdy 4370*; *loc. cit.,* 15 Jul 2014, *Oppenheimer & K. Bustamente #H71402*; *loc. cit.,* 12 Aug 2014, *Oppenheimer #H81402, #H81403*; mauka of the junction of Kekaulike & Kula Hwys, N of Kaipoioi Gulch, 945 m, 16 Jul 2014, *Oppenheimer & K. Bustamente #H71403.*

Euphorbiaceae

Euphorbia lactea Haw. **New island record**

First reported in Hawai‘i from the islands of Kaua‘i and O‘ahu by Frohlich & Lau (2012: 35), they noted that it was not known to flower in cultivation and thus was apparently being spread by vegetative means. It was also reported from dry areas on both islands and on a cliff on Kaua‘i. On Maui widely separated individuals are growing on cliffs dominated by *Leucaena* and *Opuntia*.

Material examined. **MAUI**: West Maui, Lahaina Distr, Honolua Bay, west side of Kulaoka‘e‘a, near Līpoa Pt, 20 ft, 10 Jan 2010, *Oppenheimer & F. Duvall #H11003* (BISH).

Fabaceae

Crotalaria lanceolata E. Mey. **Range extension**

This rattlepod has been reported from O‘ahu, East Maui, and Hawai‘i (Wagner *et al.* 1999: 660; Oppenheimer 2004: 12; Imada 2007: 37). It is now known from West Maui.

Material examined. **MAUI**: West Maui, Lahaina Distr, Honokahua, occasional but locally common, growing at edge of abandoned golf course fairway, 76 m, 5 Apr 2015, *Oppenheimer & M. Oppenheimer #H41513*.

Dioclea wilsonii Standl. **New island record**

Naturalized or possibly indigenous, this species occurs in coastal forests in Honduras, and in Tahiti (where it is also presumed naturalized), as well as on Kaua‘i and Hawai‘i (Wagner *et al*. 1999: 670). Recently it was found on windward east Maui.

Material examined. **MAUI**: East Maui, Hāna Distr, Nāhiku, high-climbing vines in alien vegetation along disturbed roadside, 38 m, 19 Jun 2012, *Oppenheimer, K. Bustamente, & S. Perlman #H61206* (BISH).

Pueraria phaseoloides (Roxb.) Benth. **New island record**

In the discussion of the genus *Pueraria* DC., Wagner *et al.* (1999: 693) mentioned *P. phaseoloides* as widely cultivated and prone to naturalization and sometimes becoming a pest. Later, Frohlich & Lau (2008: 7) documented it as such on O‘ahu. On Maui it also has the potential to become a pest based on observation at least in the Kapi‘a area, where it occurs over several hundred meters.

Material examined. **MAUI**: East Maui, Hāna Distr, Ka‘elekū, 76 m, 22 Jan 2013, *Oppenheimer & S. Perlman #H11305* (BISH); Kakio, S side of Kapi‘a Stream, common, 244 m, 31 March 2016, *Oppenheimer & M. Padgett #H31611*.

Vigna luteola (Jacq.) Benth. **New island record**

Only recently reported as a naturalized species, it was found on Kaua‘i and O‘ahu (Staples *et al.* 2003: 12; Frohlich & Lau 2012: 39). On West Maui it was found to be locally common, covering over an acre of disturbed *‘ōhi‘a/lama* lowland forest.

Material examined. **MAUI**: West Maui, Wailuku Distr, ʻĪao Valley, *Oppenheimer, K. Bustamente, & J. Nielsen #H41401.*

Iridaceae

Trimezia steyermarkii R.C. Foster **New island record**

Native to southern Mexico through Central America to Venezuela and Colombia, this species was found on Maui in secondary lowland wet forest. Previously it was reported from O‘ahu (Frohlich & Lau 2014: 10).

Material examined. **MAUI**: East Maui, Hāna Distr, Wākiu, below Olopawa, 85 m, 21 Jun 2012, *Oppenheimer, K. Bustamente, & S. Perlman #H61213*.

Passifloraceae

Passiflora vitifolia Kunth **New island record**

Native to the lowland Neotropics from Central America to Peru, and cultivated for its showy red flowers, this species escapes cultivation and is sparingly naturalized on O‘ahu (Wagner *et al*. 1999: 1014). This is consistent with observations and collections from Maui.

Material examined. **MAUI**: East Maui, Makawao Distr, Kaupakalua, ‘Awalau Gulch, 439 m, 7 Apr 2013, *Oppenheimer & S. Aruch #H41303*.

Adventive species showing signs of naturalization

Asteraceae

Calendula arvensis L.

Field marigold is an annual herb native to Europe and is used medicinally. It is naturalized in California (www.calflora.org, accessed 20180810). On Maui a single plant was found growing out of a rock wall, where it apparently was not cultivated. The leaves have a strong smell, and the flowers are on single stalks with yellow ray and disc florets.

Material examined. **MAUI**: Lahaina Distr, Honokahua, 24 m, 23 Apr 2010, *Oppenheimer #H41004* (BISH).

Begoniaceae

Begonia serratipetala Irmscher

This attractive herb native to New Guinea was found outside of cultivation. It has fibrous roots and red stems that root where they come in contact with wet ground. Leaves are oblique, olive green with raised pink spots above, and red-purple beneath, as well as pink to red flowers (Staples & Herbst 2005: 178).

Material examined. **MAUI**: East Maui, Hāna Distr, lower Nāhiku, Honolulu Nui, 91 m, 19 Sep 2012, *Oppenheimer, I. Nelson, & T. Summers #H91212* (BISH).

Bromeliaceae

Aechmea fulgens Brongn.

Not previously known as a naturalized species in Hawai‘i, the only other species in the genus *Aechmea* Ruiz & Pavón naturalized is *A. bracteata* (Sw.) Griseb. on O‘ahu (Frohlich & Lau 2008: 4). The two differ in the size of the floral bracts, which are small or absent in *A. fulgens* (Staples & Herbst 2005: 634). This species is native to Brazil, where it grows both terrestrially and epiphytically (Staples & Herbst 2005: 634).

Material examined. **MAUI**: East Maui, Hāna Distr, lower Nāhiku, Honolulu Nui, specimens retrieved from large rotted and fallen branch from a large mango tree, 91 m, 19 Sep 2012, *Oppenheimer, I. Nelson, & T. Summers H91213* (BISH).

Lamiaceae

Origanum vulgare L.

The true oregano is native to most of Europe and cultivated worldwide as a culinary herb (Staples & Herbst 2005: 365). It is propagated from seed or cuttings, and easily grown from even short pieces of stem.

Material examined. **MOLOKA‘I**: Wailau Valley, apparently originally cultivated but sparingly spread into nearby rocky sites, 90 m, 11 Oct 2009, *Oppenheimer & S. Perlman #100906* (BISH).

Marantaceae

Calathea zebrina (Sims) Lindley

Not previously known to have escaped cultivation in Hawai‘i, zebra plant is grown for its patterned foliage and is used as a ground cover. It differs from *C. crotalifera* S. Watson, the other naturalized species of *Calathea* in Hawai‘i, by its shorter, more cylindrical inflorescence (Staples & Herbst 2005: 703).

Material examined. **MAUI**: East Maui, Hāna Distr, Honolulu Nui, herbs, locally naturalized, spreading at least vegetatively by runners and “walking,” in dark, shady, alien dominated forest, 84 m, 19 Jun 2018, *Oppenheimer #H61804*.

Menyanthaceae

Nymphoides aquatica (T. Walker) Kuntze

This aquatic herb, known as banana plant or water snowflake, is native to the eastern United States westward through Texas, where it grows in lakes, ponds, bogs, and ditches (Staples & Herbst 2005: 401). How it came to be growing in a small pool of muddy water is a matter of conjecture, but it is along a popular hiking trail.

Material examined. **MAUI**: West Maui, Wailuku Distr, Waiheʻe Ridge Trail below Lanilili summit, 680 m, 23 Sep 2011, *Oppenheimer & J. Nielsen #H91119*.

Rosaceae

Prunus persica (L.) Batsch var. ***nucipersica*** (Suckow) C.K. Schneider

The nectarine is a popular fruit, and viable seeds germinate where discarded, although at the present time it is unknown if these trees reproduce and multiply. The specimen was collected in an area that had burned in 2007. The fruit were small but delicious.

Material examined. **MAUI**: East Maui, Makawao Distr, Kēōkea, Kula FR, 1939 m, 1 Sep 2009, *Oppenheimer #H90901*.

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