

Notes on native and alien Hymenoptera and Diptera (Insecta) from the Hawaiian Islands¹

KARL N. MAGNACCA

*O'ahu Army Natural Resources Program, USAG-HI Division of Public Works,
Schofield Barracks, Hawai'i 96822; email: knm956@gmail.com*

Here I report new island records of alien species, as well as four notable rediscoveries of endemic picture wing *Drosophila* that have not been seen in over 40 years. Unless otherwise noted, specimens listed below were collected by KNM and deposited at the Bishop Museum (BPBM) and University of Hawai'i–Mānoa Insect Museum (UHIM) as noted. *Drosophila* vouchers are temporarily stored at the OANRP collection and will ultimately be deposited at UHIM.

DIPTERA

Culicidae

Aedes japonicus (Theobald)

Range expansion, New island record

This mosquito has been established on Hawai'i since 2003, and was first discovered on O'ahu in 2012 as a single individual in a Honolulu airport monitoring trap (Yang and Hasty 2013). It has now been found established in forested areas across the Wai'anae range, at Līhu'e (Schofield Barracks), Mākaha Valley, and Puuli'i Gulch (also observed at Kūmaipō Gulch, Wai'anae Valley), where it is widespread but uncommon and sympatric with *Ae. albopictus* (Skuse). A single individual was also found on Kaua'i, the first record of the species there. Notably, all of these records are from mesic forest without any conspicuous standing water; it has not yet been found at the summit of Ka'ala or in the Ko'olau range, or in the wetter forest east of Kōke'e on Kaua'i, where the climate and forest are more similar to the upper elevations of Hawai'i Island that it now thrives in.

Material examined. **O'AHU:** Mākaha Valley, 720 m, 21.5014°N 158.1682°W, 7 Nov 2013 (1♀ BPBM). North Hale'au'au Gulch, Schofield West Range, 550 m, 21.5001°N 158.1238°W, 10 Sep 2014 (1♀ BPBM, 1♀ UHIM). North Puuli'i Gulch, Honouliuli Forest Reserve, 550 m, 21.4254°N 158.0883°W, 12 Nov 2014 (1♀ BPBM). **KAUA'I:** Honopū Trail, 1125 m, 22.1498°N 159.6570°W, 24 May 2014 (1♀ BPBM).

Drosophilidae

Drosophila kinoole Magnacca

Rediscovery

This species was known only from a single teneral, poorly-preserved specimen reared from *Urera glabra* (Urticaceae) in 1971, which was misidentified as *D. aglaia* Hardy (Montgomery 1975, Magnacca & Price 2012). At the time of publication, it was described based on fragmentary material because it was feared extinct. Examination of intact specimens reveals that the true wing pattern is more extensive than figured in the original description, and significantly different from any other species (Fig. 1). It is most similar to *D. aglaia*, differing in having the mark in cell r_5 attached to that on the dm-cu crossvein

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Fig. 1. *Drosophila kinoole* Magnacca, Wai'anāe Valley.

rather than separate; lacking a separate mark on the r-m crossvein; and having the penultimate segment of vein M over 1.5 times as long as the antepenultimate segment (between the subbasal break and r-m crossvein), rather than about as long. In addition, the median stripe of the mesonotum is prominent and broadest at the posterior margin (rather than narrowing posteriorly in *D. aglaia*), and the male has a row of long posterodorsal cilia and shorter anterodorsal cilia on the front tibia (longest near the middle) with no long cilia at the base (the original description of this character was incorrect). Less than four months after they were found at Wai'anāe Valley, the site was severely damaged by large boulders rolling down from an eroding ridge above.

Material examined. O'AHU: Kūmaipō Gulch, Wai'anāe Valley, 660 m, on [mushroom and banana] bait sponge, 21.4990°N 158.1533°W, 19 Feb 2014, 1♂.

***Drosophila neogramshawi* Hardy & Kaneshiro Rediscovery**

This species was last recorded in 1972, and had not been seen in the Wai'anāe range since 1916. It breeds in *Clermontia* (Montgomery 1975), which is relatively rare on O'ahu.

Material examined. O'AHU: Ka'ala below summit, Schofield West Range, 1150 m, on [mushroom and banana] bait sponge, 21.5080°N 158.1407°W, 9 Oct 2014, 1♂.

***Drosophila reynoldsiae* Hardy & Kaneshiro Rediscovery**

This species was last collected in 1971. It was included in the original proposal to list 18 *Drosophila* species as Endangered, but was one of the five that were not ultimately listed,

presumably because it was considered extinct. A total of four individuals were observed, in company with the rare *D. flexipes* Hardy & Kaneshiro and *D. paucicilia* Hardy & Kaneshiro, and the Endangered *D. obatai* Hardy & Kaneshiro.

Material examined. O'AHU: Manuwai Gulch, Lower Ka'ala NAR, 480 m, on [mushroom and banana] bait sponge, 21.5230°N 158.1259°W, 12 Feb 2014, 1♂.

***Drosophila spaniothrix* Hardy & Kaneshiro Rediscovery**

This somewhat enigmatic species was last recorded in 1971. It has a similar wing pattern to *D. odontophallus* Hardy & Kaneshiro, but has a much more prominent dorsal stripe on the mesonotum as in *D. grimshawi* Oldenberg and reduced ciliation of the male fore legs. The present specimens were found in a small grove of *Chrysodracon* (= *Pleomele*) *forbesii* (Asparagaceae) with few other host plants. Previous records also coincide with those of the other *Chrysodracon*-breeding species, *D. gymnophallus* Hardy & Kaneshiro, *D. psilophallus* Hardy & Kaneshiro, and *D. obatai*, suggesting that it is indeed a *Chrysodracon* breeder in the *odontophallus* species subgroup. Remarkably, this means that O'ahu has four sympatric *Chrysodracon* specialist *Drosophila*. A total of three individuals were observed.

Material examined. O'AHU: Central Makaleha Gulch, below culvert 45, 720 m, on [mushroom and banana] bait sponge, 21.5154°N 158.1625°W, 18 Sep 2014, 1♂.

HYMENOPTERA

Colletidae

***Hylaeus (Indialaeus) strenuus* (Cameron) New island record**

This Indian species was previously recorded only from O'ahu, where it has spread dramatically in both range and abundance since 2011, after staying at low levels for several years since being first discovered in 2007 (Magnacca *et al.* 2011, Magnacca *et al.* 2013). It was found for the first time on another island at Wailua on Kaua'i. While the island has not been sampled thoroughly, it can be expected to spread there as it has on O'ahu if it has not already. This species is potentially a serious threat to the native coastal *Hylaeus*, as it can reach high population densities and visits the same flowers.

Material examined. KAUA'I: Wailua, Lydgate Beach Park, at *Heliotropium foertherianum* (= *Tournefortia argentea*), 21.2930°N 157.6597°W, 9 Oct 2014 (1♂ BPBM, 1♂ UHIM).

Megachilidae

***Megachile (Pseudomegachile) lanata* (Fabricius) New island record**

Two specimens of this newly-arrived species were discovered on O'ahu in 2012 during roadside bowl trap surveys (Magnacca *et al.* 2013). In a similar survey of Maui in 2013, it was found to be considerably more abundant, especially near the resort areas of West Maui.

Material examined. MAUI: West Maui, 20.8433°N 156.6516°W [Launiupoko], 3–4 May 2013, S. Droege (17♂ 1♀ BPBM). West Maui, 20.9393°N 156.6890°W [Kā'anapali], 3–4 May 2013, S. Droege (23♂ 3♀ UHIM). West Maui, 20.9699°N 156.6772°W [Nāpili], 3–4 May 2013, S. Droege (30♂ 5♀ BPBM). West Maui, 20.7946°N 156.4666°W [Keālia pond], 7–8 May 2013, S. Droege (3♂ BPBM). Waikapu, 20.8870°N 156.4995°W [coordinates are in Wailuku], 14 May 2013, S. Droege (2♂ UHIM).

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