Some endemic insects of Hawai‘i Island

And why they are amazing

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https://www.ctahr.hawaii.edu/insectmuseum/

Photo: g_heaton https://www.inaturalist.org/observations/234359511

Wēkiu bug, *Nysius wekiuicola*

- Endemic to Maunakea summit
- Thrives in one of the harshest environments on the planet
- Evolved to be flightless from lowland sister species (note tiny reduced wings)
- Feeds (sucks) on aeolian debris (other insects blown up the mauna)

Photo: mlodinow https://www.inaturalist.org/observations/2485199

Plagithmysus bilineatus

- Bores into ‘ōhi‘a trees only
- Strongly attracted to wounded or felled ‘ōhi‘a trees
- Was believed to be causing ‘ōhi‘a forest decline before the real reason, Rapid ‘Ōhi‘a Death, was discovered
- Can be found in all areas of Hawai‘i Island with ‘ōhi‘a

Photo: University of Hawai‘i Insect Museum

Plutella noholio

- Endemic to Kona side of Hawai‘i Island
- Feeds only on maiapilo
- Tiny; wingspan about 5 mm
- Endangered: populations dwindled from goats eating host plant (plant more maiapilo!)

Photo: University of Hawai‘i Insect Museum

Hyposmocoma carnivora

- Its caterpillar is carnivorous! Eats other *Hyposmocoma* caterpillars and tiny native snails
- *Hyposmocoma* is one of the oldest lineages of Hawaiian endemic insects, predating the age of Kaua‘i by millions of years.

Photo: University of Hawai‘i Insect Museum

Philodoria obamaorum

- Tiny moths about the size of an eyelash!
- The caterpillars make leaf mines (tunnels inside the leaf!) in māmaki leaves. Watch a video: https://youtu.be/JtxF52b0wgQ?si=8ijh5WMJWztVnGCf
- This species was named in honor of Barack and Michelle Obama for their support of Hawaiian conservation efforts

Photo: University of Hawai‘i Insect Museum

Merimnetria gigantea

- An example of island gigantism; about 5x larger than other species in this genus
- Host plant unknown, but likely a Rubiaceae
- Widespread on Hawai‘i Island and relatively common in forests with native Rubiaceae

Photo: University of Hawai‘i Insect Museum

Paalua maunaloa

- Another example of island gigantism; about 3x larger than most other species in this family in the world
- Only known from the windward slopes of Maunaloa, but has not been seen in nearly 50 years.
- The caterpillars feed on pa‘iniu
- The females are flightless (an adaptation to preserve energy at high elevation), only the males can fly

Photo: Medeiros MJ, Howarth FG (2017) Two new endemic cave-living moths from Hawai'i Island: A new species of *Pseudoschrankia* (Erebidae), and a new species of *Mestolobes* (Crambidae). Zootaxa 4276: 435–440. https://doi.org/10.11646/zootaxa.4276.3.8

Mestolobes olali

- Only found near the entrances of lava tubes
- A day-flying (diurnal) moth with glittery silver bands on the wings

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Pseudoschrankia nohoana

- Lives inside lava tubes, its caterpillars feed on protruding roots of ʻōhiʻa and other plants

Photo: alancressler (instagram)

Oliarus polyphemus

- Lives inside lava tubes, feeding on protruding roots of ‘ōhi‘a
- Evolved to be blind, without pigment (albino), and flightless, from sister species that live outside caves
- Wax filaments emerge from its abdomen from a unique gland; the filaments are used to make a protective cocoon

Photo: silversea_starsong https://www.inaturalist.org/observations/177540669

Trupanea arboreae

- The larvae feed in flowerheads of the ʻāhinahina (silverswords) on Maunakea and Kau, and naʻenaʻe (*Dubautia*) across Hawaiʻi Island
- Uses wing waving to communicate with each other

Photo: https://dlnr.hawaii.gov/wildlife/files/2022/11/Drosophila-heteroneura.pdf

Drosophila heteroneura

- You probably know the hammerhead shark, but have you heard of the hammerhead fly?!
- Only found on the southern slopes of Maunakea
- The males fight each other with their huge heads to mate with females
- Federally listed as endangered

Sigmatineurum omega

- River-loving fly and a hunter that eats other small flying insects
- Only known from Wailuku River, including near Boiling Pots
- Very rare, only 15 specimens have ever been found

Photo: kmagnacca https://www.inaturalist.org/observations/49810178