

Terrestrial Invertebrates

Craneflies

Dicranomyia (Diptera:
Limoniidae)

Genus Includes:

13 species

13 endemic species

3 flightless species

General Information: Limoniidae and their relatives, collectively referred to as craneflies, are the most diverse group of Diptera, with nearly 15,000 described species (Oosterbroek, 2015). Larvae in this family are known to use a wide diversity of habitats, including running and stagnant freshwater, brackish pools, algae and other plant material present in the intertidal zone, and the leaves of terrestrial plants (Prichard 1983). Hawaiian *Dicranomyia* species are found in wet habitats where their larvae develop in water, wet soil or other moist environments (Hardy 1960). The genus *Dicranomyia* contains 13 species in Hawaii, all of which are endemic. These species can be found at most elevations (Hardy 1960; Goodman et al. 2013). Three species are flightless, single mountaintop endemics, inhabiting bogs on Oahu and Kauai (Byers 1982; 1985; 1994). These three species are extremely rare and have not been collected in over 25 years (O'Grady unpublished). Another species, *D. nigropolita*, was described by Alexander (1923) and examined from several islands by Hardy (1960) but has not been collected in the past 15 years, in spite of intensive efforts (Goodman et al. 2013; Nitta and O'Grady 2008; O'Grady unpublished).

Distribution: The endemic *Dicranomyia* species are found on all the main Hawaiian Islands. Three narrow endemic species, *D. sabroskyana* (Kauai), *D. hardyana* (East Oahu), and *D. gloria* (West Oahu) are bog endemics on the older islands.

Abundance: Largely unknown for individual species. Large collections comprise tens of species at a given site (O'Grady unpublished). Four rare species are infrequently collected and have not been observed in decades.

Location and Condition of Key Habitat: *Dicranomyia* species are found in association with coastal, estuary and freshwater stream habitats and wet forests throughout the main Hawaiian Islands. Bog habitats on Kauai and Oahu are especially important for the flightless species.

Threats:

- Extended periods of drought or man-made water diversions can threaten critical habitat by eliminating native stream and wet forest ecosystems.

- Invasive species, particularly ants, can have a negative impact as predators of flightless taxa.
- Pigs destroy native bog habitat through foraging.

Conservation Actions:

- Protect existing habitats in freshwater stream systems.
- Conduct surveys to determine the distribution and abundance of known *Dicranomyia* species and to document and identify new species.
- Preserve, maintain, and restore habitats supporting existing populations.
- Initiate studies on life history, distribution, and critical habitats to better direct conservation measures.

Monitoring:

- Continue surveys to monitor status of known populations in order to assess their stability and trends.
- Verify persistence of flightless taxa in the Koolau and Waianae Mountains on Oahu and in the Alakai Swamp on Kauai.

Research Priorities:

- Survey for additional, new populations.
- Survey to determine status of infrequently collected species.
- Conduct studies to document the biology, habitat requirements, and life history of poorly-known, native species

References

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