



*Prognathogryllus* sp.

## Terrestrial Invertebrates

### Crickets and Katydid Order Orthoptera

**ORDER INCLUDES:**  
3 Native Families  
10 Native Genera  
269 Native Species

268 Endemic Species

**GENERAL INFORMATION:** Crickets and katydids are well-known because of their jumping and singing abilities. In general, members of the order are herbivores, but many species are omnivores. Some of the best examples of cryptic coloration and mimicry are found in this group, with some species being shaped like leaves or colored to match their background. The number of endemic Hawaiian cricket species is twice the number known from the entire continental United States, yet only four of the major Orthopteran groups (tree crickets, sword-tail crickets, katydids, and grasshoppers) are represented. The largest number of endemic species by far is found in the sword-tail crickets, Trigonidiidae, primarily the genera *Nudilla* (formerly *Laupala*, 37 species) and *Zudella* (formerly *Paratrigonidium*, 133 species). They are often abundant in forests, sometimes even in disturbed areas, and species are difficult to distinguish. Unlike most crickets, many species sing during the day. Another genus, *Caconemobius* (~13 species) consists of species found in rocky areas including shorelines, cliffs, lava flows, and caves. The cave species are very variable and probably in the process of speciating.

The tree crickets (Oecanthidae) are divided into two major groups: *Prognathogryllus* (37 species) are large, robust, and sing, while *Leptogryllus* (28 species) and *Thaumatoeryllus* (5 species) are more slender with tiny wings, courting via scent instead of singing. Because they live higher in trees, they are much more often heard than seen. Katydid (Tettigoniidae) are represented by a single small radiation, the endemic flightless genus *Banza* (11 species), as well as the enigmatic long-winged *Conocephaloides remotus*. The latter is known from only six specimens, the last from 1941, and is likely extinct.

**DISTRIBUTION:** Crickets and katydids are known from all the MHI except for Ni‘ihau. There are also two species endemic to Nihoa in the NWHI.

**ABUNDANCE:** Unknown. A lack of systematic surveys prevents any population estimate. Tree crickets are difficult to survey due to their habit of staying close to the canopy, and others tend to be cryptic and difficult to catch despite their songs. However, the loss of native habitats likely means that species within the order are declining.

**LOCATION AND CONDITION OF KEY HABITAT:** Crickets and katydids occur in a wide range of habitats including mesic and wet forests, rocky shores and lava flows, and caves. Cave habitats are highly sensitive to disturbance and changes in temperature and humidity, and are

dependent on tree roots growing through the roof of the cave. A number of introduced crickets inhabiting forests, lava flows, and shorelines have arrived in recent decades.

**THREATS:**

- Loss or degradation of habitat.
- Non-native invasive predators, parasitoids, and competing cricket species.
- Habitat-modifying non-native plants.
- Insufficient information for species assessments.

**CONSERVATION ACTIONS:** The goals of conservation actions are not only to protect current populations and key breeding habitats but also to establish additional populations, thereby reducing the risk of extinction. In addition to common statewide and island conservation actions, specific management directed toward crickets and katydids should include:

- Conduct surveys to determine distribution of known crickets and katydids and to document and identify new species.
- Preserve, maintain, and restore habitats supporting existing populations.

**MONITORING:**

- Determine monitoring methods for assessing taxa not amenable to standard methods.
- Continue monitoring the status of known populations.

**RESEARCH PRIORITIES:**

- Conduct studies to determine the effects of non-native predators and parasitoids on species.
- Conduct systematic and taxonomic assessments of poorly known taxa.
- Work to identify and describe new species to science.
- Conduct studies to document the biology, habitat requirements, and life history of native species.

**References:**

Nishida GM editor. 2002. Hawaiian terrestrial arthropod checklist, 4<sup>th</sup> edition. Bishop Museum Technical Report No. 22: iv + 310 pp.

Otte D. 1994. The Crickets of Hawaii. Philadelphia: Orthopterists' Society.

Zimmerman EC. 1948. Insects of Hawaii: Volume 2, Apterygota to Thysanoptera Inclusive. Honolulu: University of Hawaii Press.