



Insectivorous Bat Monitoring



The 'ōpe'ape'a may be monitored in six PACN parks.

Network Parks Where Potentially Monitored

- ▼ Pu'uhonua o Hōnaunau National Historical Park (PUHO)
- ▼ Hawai'i Volcanoes National Park (HAVO)
- ▼ Kalaupapa National Historical Park (KALA)
- ▼ Kaloko-Honokōhau National Historical Park (KAHO)
- ▼ Haleakalā National Park (HALE) — secondary priority
- ▼ Pu'ukoholā Heiau National Historic Site (PUHE) — secondary priority

Importance: Hawaii's Only Native Terrestrial Mammal

The Hawaiian hoary bat (*Lasiurus cinereus semotus*), known in Hawaiian as 'ōpe'ape'a, is the only native terrestrial mammal in Hawaii. It was listed as an endangered species in 1970 and is protected by law. Insectivorous bats are known to have economic and agricultural importance as predators of insect pests. Due to high metabolic rates and consumption of a diversity of insects, bats play an important ecological role by keeping insect populations in balance. 'Ōpe'ape'a population estimates have ranged from hundreds to thousands of individuals, but these numbers are based on anecdotal and incomplete data. It does appear, however, that the range and numbers of these bats have decreased significantly, as they were historically present on all main Hawaiian islands. It is thought that the islands of Hawai'i and Kaua'i now have the largest bat numbers, while sightings on other islands are uncommon. Current information regarding the natural history and population status of this species is scarce.



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Long-Term Monitoring

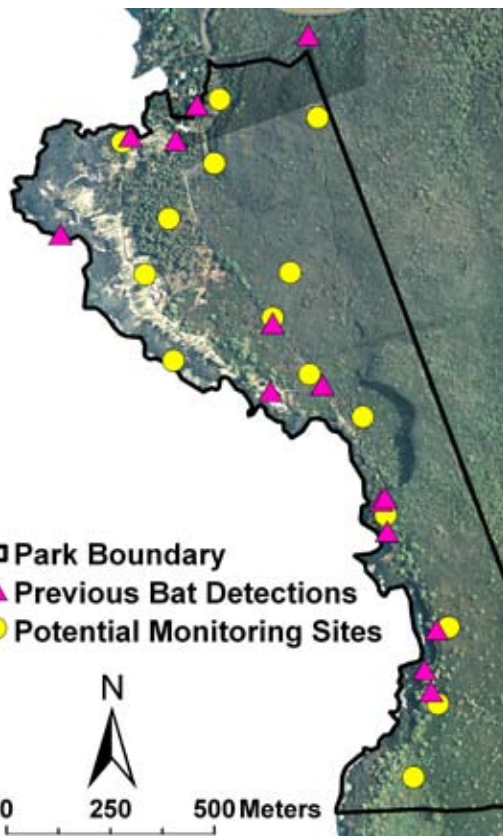
The PACN is developing a monitoring protocol using acoustic bat detectors to survey selected sites in six PACN parks. Bat echolocation calls are observed with AnaBat II detectors and recorded with a ZCAIM, a device which stores data onto a compact flash memory card for later downloading onto a PC. This system is well suited for the implementation of passive, long-term monitoring as it can be left remotely in the field for weeks at a time. Activity patterns will serve as a surrogate for relative abundance, allowing for inferences to be made regarding changes in bat occurrence over time (i.e., monthly, seasonally, annually, and spatially).

Monitoring Objectives

- ▼ Determine status and trends of Hawaiian hoary bat occupancy in selected areas of HAVO, PUHO, KAHO, and KALA
- ▼ Determine Hawaiian hoary bat presence and use of selected areas in HALE and PUHE

Management Applications

- ▼ Improve understanding of Hawaiian hoary bat use of selected park areas by supplementing existing information on seasonality and elevational movements
- ▼ Aid park resource management staff in developing feasible goals and strategies for management of high occupancy/use areas



Hawaiian hoary bats have been detected all along the PUHO coastline. Based on these observations, certain sites are selected for long-term monitoring.