

An O'ahu Tree Snail image

## Terrestrial Invertebrates

# O'ahu Tree Snails

*Achatinella*

**SPECIES STATUS:**

Federally Listed as Endangered

State Listed as Endangered

State recognized as indigenous

Hawai'i Natural Heritage Ranking G1-Critically Imperiled

IUCN Red List Ranking-Critically Endangered

**SPECIES INFORMATION:** Endemic to O'ahu, the entire genus consists of 42 species with only 20 believed to be currently in existence (of which 18 are seen only in small numbers and very restricted areas putting them on the verge of extinction). Adult snails are hermaphroditic and can live for many years, however growth rate and fecundity are very low. Young are born alive. They are arboreal and nocturnal. Often mentioned in Hawaiian folklore and song as well as historically used for leis and other ornaments.

**DISTRIBUTION:** Historically found near sea level along the windward coast to the central plains and up to the ridges of Ko'olau and Wai-'anae Mountains on O'ahu, current distribution is restricted to remnant native forests on the high ridges of the Ko'olau and Wai-'anae Ranges on O'ahu.

Map of O'ahu Tree Snails distribution

**ABUNDANCE:** Due to lack of systematic assessments, no abundance figures are available. Most accounts are derived from personal observations from hikes or field notes and interviews. For most written reports, it is unclear if the snail sightings were from one or more trees or if the trees were isolated or part of a larger habitat. However, due to habitat declines ranging in the 75-95% percentile, it is believed that populations are at critical levels. *Achatinella mustelina* and *Achatinella sowerbyana* are believed to be the most abundant of the existing species.

**LOCATION AND CONDITION OF KEY HABITAT:** All species of *Achatinella* live in trees and bushes, feeding on fungi of the leaves and trunks. Found in dry, mesic, and wet forests as well as shrublands.

**THREATS:** Historically, reasons for decline are attributed to loss of native forest habitat, introduction of predators such as rats, introduction of carnivorous snail *Euglandina rosea* for biocontrol purposes, and collection of individuals for trade. Low reproductive rates and limited dispersal abilities increase the vulnerability of this genus. Current threats include degradation of habitat from encroaching non-native, invasive vegetation (e.g. strawberry guava, Christmas berry, silk oak, *Lantana camara*, and *Clidemia hirta*) and pigs as well as continued predation by rats and introduced snails.

**CONSERVATION ACTIONS:** The goals of conservation actions are to not only protect current populations, but to also establish further populations to reduce the risk of extinction. Current habitats are protected by the Department of Land and Natural Resources, Department of Defense, the Nature Conservancy, and private owners such as Campbell Estate. In addition to common state-wide and island conservation actions, specific actions include:

- Restoration of habitat and protection of existing habitat;
- Continuation of captive propagation; and
- Predator control.

**MONITORING:**

- Continue surveys of population and distribution in known and likely habitats;
- Continue surveys of predatory populations and non-native vegetation.

**RESEARCH PRIORITIES:**

- Improve understanding of growth, population size, and age distribution;
- Establish population survey protocols to allow for consistent surveys and monitoring activities;
- Improve understanding of habitat needs and requirements.

**References:**

U.S. Fish and Wildlife Service. 1992. Recovery Plan for the O'ahu Tree Snails of the Genus *Achatinella*. U.S. Fish and Wildlife Service, Portland, OR. 64 pp. + 64 pp. of Appendices + 5 figures.