

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Newcombia cumingi*

COMMON NAME: Newcomb's tree snail

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: February 2003

STATUS/ACTION (Check all that apply):

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: ____

90-day positive - FR date: ____

12-month warranted but precluded - FR date: ____

Is the petition requesting a reclassification of a listed species?

Listing priority change

 Former LP: ____

 New LP: ____

Latest date species first became a Candidate: October 25, 1999

Candidate removal: Former LP: ____ (Check only one reason)

A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Animal, Mollusca, Achatinellidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: State of Hawaii, Maui Island.

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: State of Hawaii, Maui Island.

LEAD REGION CONTACT (Name, phone number): Scott McCarthy (503/231-6131)

LEAD FIELD OFFICE CONTACT (Office, name, phone number): Mike Richardson, (808) 541-3441.

BIOLOGICAL INFORMATION:

Newcombia cumingi is an endemic tree snail to the island of Maui. It reaches an adult length of approximately 21 millimeters (mm) ((0.8 inches (in.)) (Thacker and Hadfield 1988). As with other achatinellid tree snails of Hawaii, *Newcombia cumingi* likely feeds on fungi and algae which grow on the leaves and trunks of living trees. Based on the short study period on which information is currently based, *N. cumingi* is believed to exhibit the slow growth and low reproductive rate of other Hawaiian tree snails belonging to this family.

The Hawaiian tree snail genus *Newcombia* (Pfeiffer) is endemic to the islands of Maui and Molokai. Six of the known species were endemic to Molokai (*N. canaliculata*, *N. lirata*, *N. perkinsi*, *N. pfeifferi*, *N. philippiana*, and *N. sulcata*), with only one species, *N. cumingi*, occurring on the island of Maui (Cowie *et al.* 1995). Currently, all of the Molokai species are believed to be extinct and until 1995, *N. cumingi* had not been observed in over 50 years. Early collection records of Maui tree snails indicate that this snail had a relatively wide distribution being found from the western slopes of Haleakala on east Maui and throughout west Maui. Thus, this species was found within a range of some(2,677 hectares (6,615 acres (ac)). Early collectors noted this species occurring in montane areas (> 1000 meters (m) (3,280 feet (ft)) in elevation to just above sea level (<240 m (790 ft)). In 1994, natural resource personnel located a small population of *N. cumingi* while monitoring transects for alien species in the mountains of west Maui. Previous natural resource activity in the area, as well as surveys conducted in adjacent areas for tree snails, had failed to locate this species. After this finding, more focused surveys in the area failed to locate additional sites where *N. cumingi* was present and population studies of the single known population estimated total numbers at 86 individuals restricted to an area of 0.23 ha (0.6 ac).

THREATS:

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

The single known population of *Newcombia cumingi* occurs on private land which is currently zoned and managed as conservation land. The population occurs in habitat dominated by native plants and is largely protected from alien ungulates through active management (*e.g.*, fencing). Alien plant species present in the area are noted to pose on-going threats to native habitats (*e.g.*, *Rubus* spp.; Smith 1992). Despite current conservation management efforts, wet montane habitats of the Hawaiian Islands have been impacted, to some degree, by alien ungulates (pigs) and invasive weeds. Feral pigs are present in nearly all Hawaiian wet forests, and have only recently been excluded from a small area of such forest on protected lands. Their rooting opens pristine areas of forest and allows the establishment and growth of seeds carried in their fur and feces, as well as seeds brought in by other means (*e.g.*, bird droppings; Stone 1992). Other invasive alien plants are a constant threat to native Hawaiian forest and constant management efforts are required to keep them under control in pristine areas (Smith 1992).

B. Overutilization for commercial, recreational, scientific, or educational purposes.

The Hawaiian tree snails within the family Achatinellidae were extensively collected for

scientific as well as recreational purposes in the 18th to early 20th centuries. While these impacts may have been especially severe to some species and populations within the genera of *Achatinella* and *Partulina*, it has not yet been determined if the *Newcombia* was impacted by such collections.

C. Disease or predation.

Although diseases have been shown to have impacted other rare snail species (Ferber 1998), this has not been documented to have contributed to declines in the Hawaiian tree snail fauna. Predation has been well documented to have had severe impacts on the tree snail fauna of Hawaii and other Pacific islands (Cowie 1992; Hadfield and Mountain 1980; Hadfield 1986; and Solem 1990). Both introduced rats (*Rattus* spp.) and the introduced rosy carnivore snail (*Euglandina rosea*) have long been documented to prey on Hawaiian tree snails, virtually wiping out some populations (Hadfield and Mountain 1980). During Hadfield's surveys for *Newcombia cumingi* (Thacker and Hadfield 1998), evidence of rat predation on other tree snail species within the study area was documented. In addition, the rosy carnivore snail was found on the ground directly below trees containing *N. cumingi*. There is little doubt that these predators have had major impacts on Hawaiian tree snails in the past and are likely the most serious threat at this time.

D. The inadequacy of existing regulatory mechanisms.

Currently, there is no Federal or State protection for *Newcombia cumingi*.

E. Other natural or manmade factors affecting its continued existence.

While not an imminent threat, some development activities have been proposed for areas below the known population of *Newcombia cumingi*. Any additional human activity in the area could provide an avenue for the establishment and/or spread of new or established alien species. The main Maui airport in Kahului is currently proposed to be expanded for the accommodation of direct flights of commercial airliners from mainland and international origins. Direct flights will inadvertently result in the introduction of a greater number of invasive alien species to Hawaii.

FOR RECYCLED PETITIONS:

- a. Is listing still warranted? ____
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? ____
- c. Is a proposal to list the species as threatened or endangered in preparation? ____
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded.

LAND OWNERSHIP:

Only known population is located on private lands.

PRELISTING:

Aside from partial funding for surveys for *Newcombia cumingi*, the Service has not initiated any conservation activities. The Service and State of Hawaii have no working agreement with the landowner pertaining to *N. cumingi*. All conservation activities targeting this species are solely those of the landowner's.

REFERENCES:

- Cowie, R.H. 1992. Evolution and extinction of Partulidae, endemic Pacific island land snails. *Phil. Trans. R. Soc. London*, 335:167-191.
- Cowie, R.H, N.L. Evenhuis, and C.C. Christensen. 1995. *Catalog of the Native Land and Freshwater Molluscs of the Hawaiian Islands*. Backhuys Pub., Leiden, Netherlands. 248 pp.
- Ferber, D. 1998. Bug vanquishes species. *Science*, 282:215 pp.
- Hadfield, M.G. 1986. Extinction in Hawaiian Achatinelline snails. *Malacologia*, 27:67-81.
- Hadfield, M.G. and B.S. Mountain. 1980. A field study of a vanishing species, *Achatinella mustelina* (Gastropoda, Pulmonata), in the Waianae Mountains of Oahu. *Pac. Sci.*, 34:345-358.
- Smith, C.W. 1989. Non-native plants. In: C.P. Stone and D.B. Stone (eds.) Conservation Biology in Hawaii. University of Hawaii Cooperative National Park Resources Studies Unit, Honolulu, Hawaii. 60-69 pp.
- Solem, A. 1990. How many Hawaiian land snails species are left? and what we can do for them. *Bishop Museum Occasional Papers*, 30:2-40.
- Stone, C.P. 1992. Non-native land vertebrates. In: C.P. Stone and D.B. Stone (eds.). Conservation Biology in Hawaii. University of Hawaii Cooperative National Park Resources Studies Unit. Honolulu, Hawaii. 88-95.
- Thacker, R.W. and M.G. Hadfield. 1998. The Status of Newcomb's Tree Snail, *Newcombia cumingi*, on West Maui. Report to U.S. Fish & Wildlife Service.

LISTING PRIORITY (* after number)

THREAT

Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5*
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude:

Imminence:

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Rowan Gould March 6, 2003
Regional Director, Fish and Wildlife Service Date

Concur: _____
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Director's Remarks:

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Date of annual review: 2/03

Conducted by: _____

Comments:

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