5-YEAR REVIEW

Short Form Summary

Species Reviewed: Newcomb's Snail (*Erinna newcombi*)

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2015. Endangered and threatened wildlife and plants; initiation of 5-year status reviews of 133 species in Hawaii, Oregon, Idaho, and Washington. Federal Register 80(30): 8100–8103.

Lead Region/Field Office:

Region 1/Pacific Islands Fish and Wildlife Office (PIFWO), Honolulu, Hawaii

Name of Reviewer(s):

Joy Browning, Biologist, PIFWO
Megan Laut, Animal Recovery Coordinator, PIFWO
Greg Koob, Conservation and Restoration Team Manager, PIFWO

Methodology used to complete this 5-year review:

This review was conducted by staff of the Pacific Islands Fish and Wildlife Office (PIFWO) of the U.S. Fish and Wildlife Service (USFWS) beginning in January, 2016. The review was based on a review of current, available information since the last 5-year review for Newcomb's Snail (*Erinna newcombi*) (USFWS 2009). The evaluation by the Biologist was reviewed by the Animal Recovery Coordinator and Conservation and Restoration Team Manager.

Background:

For information regarding the species' listing history and other facts, please refer to the Fish and Wildlife Service's Environmental Conservation On-line System (ECOS) database for threatened and endangered species (*http://ecos.fws.gov/tess_public*).

Review Analysis:

Please refer to the previous 5-year review for Newcomb's snail (*Erinna newcombi*) published by the Service on July 29, 2009 (USFWS 2009, available at *https://ecos.fws.gov/docs/five_year_review/doc2538.pdf*) for a complete review of the species' status, threats, and management efforts. No significant new information regarding the species' biological status have come to light since listing to warrant a change in the Federal listing status of *Newcomb's snail*.

This lymnaeid snail is threatened and endemic to the island of Kauai. The current status and trends for Newcomb's snail are provided in the tables below.

New Status Information:
No new status information.

New Threats:

- Altered hydrology (USFWS 2000, 2006; Polhemus and Asquith 1996; P. Levin, pers. comm. 2011a,b)
    - Agricultural development and stream diversion loss of habitat
    - Dewatering aquifers loss of habitat
    - Vertical wells loss of habitat
    - Channelization loss or degradation of habitat
    - Hydroelectric power loss or degradation of habitat
- Landslides and flooding loss or degradation of habitat (Jones *et al.* 1984; Polhemus 1993; USFWS 2000, 2006)
- Stochastic events – Hurricane mortality and reduced viability (Polhemus 1993)

New Management Actions: No new management Actions

Synthesis:
Since the 2009 5-year review, no new information on the status of Newcomb's snail has been collected but several threats have arisen that were not previously considered. Opportunistic surveys still occur however, there has been no consistent monitoring or survey efforts in recent years.

Threats that were not previously considered include altered hydrology, landslides and flooding, and stochastic events. These threats can cause degradation and the loss of habitat, due to the lack of spring seepage, as well as loss of life due to smothering from soil or other debris that can be picked up in the waterway or upslope.

As identified in the Recovery Plan for Newcomb's Snail, recovery criteria and goals have not been met for this species. All threats are not being managed (Table 2). Therefore, Newcomb's snail meets the definition of endangered as it remains in danger of extinction throughout its range.

Recommendations for Future Actions:
No significant new information regarding the species biological status have come to light since the last 5-year review in 2009. Thus, the following recommendations for future actions are reiterated for 5-year review for 2016.

- Population biology research – Conduct research and monitoring essential to the conservation of the species (USFWS 2006).
- Predator / herbivore monitoring and control – Identify and manage predation (USFWS 2006)
- Other threats monitoring and control – Identify and mange interspecific interaction (USFWS 2006).
- Spring and instream flow protection – Maintain stream and spring flows to protect Newcomb's snail habitat (USFWS 2006).

- Surveys / inventories – Revisit all locations where Newcomb's snails have been reported in the last 20 years and obtain quantitative population data. As time and resources allow, this survey program should be augmented to include visits to unsurveyed areas likely to harbor snails, and also revisiting of areas that historically had snails but where they are now thought to be extirpated.
- Threats – predator / herbivore control research – Assess the predation threat by nonnative organisms such as the predatory snail *Euglandina rosea*.
- Population viability monitoring – Monitor Hanakapiai Stream habitat to determine the cause of the snail's extirpation. The cause of the snail's disappearance that was documented at that site historically is not known. Identification of threats to the snails is important for informed recovery planning and implementation.

Table 1. Status and trends of *Newcomb's snail* from listing through 5-year review.

Date	**No. wild individual**	**No. released**	**Delisting Criteria**	**Delisting Criteria Completed?**
2000 (listing)	6,000-7,000	0	Not yet established	Not yet established
2002 (critical habitat)	6,000-7,000	0	Not yet established	Not yet established
2006 (recovery plan)	6,000-7,000	0	Abundance and population variability are quantified and populations stabilized or increasing for 5 years	No
			Populations in eight watersheds	No
			Implement minimum in-stream flows	No

Date	No. wild individual	No. released	Delisting Criteria	Delisting Criteria Completed?
			Nonnative predators and competitors are studied, their effects quantified, and control measures implemented	No
2009 (5-year review)	unknown		Abundance and population variability are quantified and populations stabilized or increasing for 5 years	No
			Populations in eight watersheds	No
			Implement minimum in-stream flows	No
			Nonnative predators and competitors are studied, their effects quantified, and control measures implemented	No

Table 2. Threats to Newcomb's snail and ongoing conservation efforts.

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Altered hydrology	A	Ongoing	None
Landslides and flooding loss or degradation of habitat	A	Ongoing	None

Euglandina rosea predation	C	Ongoing	None
Invertebrate predation or herbivory	C	Ongoing	None
Nonnative fish predation	C	Ongoing	None
Frog and toad predation	C	Ongoing	None
Climate change degradation or loss of habitat	A	Ongoing	None
Inadequacy of existing regulatory mechanisms–Lack of adequate biosecurity legislation	D	Ongoing	None
Inadequacy of existing regulatory mechanisms–Lack of adequate aquatic habitat protection	D	Ongoing	None
Invasive species – nonnative invertebrate competition	E	Ongoing	None
Stochastic events–Hurricane mortality and reduced viability	E	Ongoing	None

References:

See previous 5-year review for a full list of references (USFWS 2010). Only references for new information are provided below.

Jones, B.L., S.S.W. Chin, and J.C. Brice. 1984. Olokele rock avalanche, island of Kauai, Hawaii. Geology 12:209-211.

Polhemus, D.A. 1993. A preliminary assessment of the impacts of hurricane Iniki on the aquatic insect faunas of streams on the Na Pali Coast, Kauai, Hawaii. Pages 59-88 in Department of Land and Natural Resources, Division of Aquatic Resources (editor), Assessments of the impact of Hurricane Iniki on stream biota and ecosystems on Kauai. State of Hawaii. Unpublished.

Polhemus, D.A. and A. Asquith. 1996. Hawaiian damselflies: a field identification guide. Bishop Museum Press, Honolulu, Hawaii. 122 pages.

[USFWS] U.S. Fish and Wildlife Service. 2000. Endangered and threatened wildlife and plants; determination of threatened status for Newcomb's snail from the Hawaiian Islands. Federal Register 65:4162-4169.

[USFWS] U.S. Fish and Wildlife Service. 2006. Recovery plan for the Newcomb's snail (*Erinna newcombi*). U.S. Fish and Wildlife Service, Portland, Oregon. 52 pages. Available online at <http://www.fws.gov/pacificislands/recoveryplans.html>.

[USFWS] U.S. Fish and Wildlife Service. 2009. Newcomb's snail *Erinna newcombi* 5-year review. Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii. 11 pages. Available online at <http://ecos.fws.gov/docs/five_year_review/doc2538.pdf>. Accessed on 17 August 2017.

[USFWS] U.S. Fish and Wildlife Service. 2015. Initiation of 5-Year Reviews of 133 Species in Hawaii, Oregon, Idaho, and Washington. Federal Register 80(30): 8100–8103.

In Litt.:

Levin, Paula. 2011a. Fish and Wildlife Biologist. U.S. Fish and Wildlife Service. Email regarding hydroelectric power. Received by Joy Browning, U.S. Fish and Wildlife Service, dated October 21, 2011.

Levin, Paula. 2011b. Fish and Wildlife Biologist. U.S. Fish and Wildlife Service. Email regarding hydroelectric power. Received by Joy Browning, U.S. Fish and Wildlife Service. Dated October 31, 2011.

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Newcomb's Snail (*Erinna newcombi*)

Pre-1996 DPS listing still considered a listable entity? N/A

Recommendation resulting from the 5-year review:

_____ Delisting
_____ Reclassify from Endangered to Threatened status
_____ Reclassify from Threatened to Endangered status
__X__ No Change in listing status

Field Supervisor, Pacific Islands Fish and Wildlife Office

Date 9/5/17