

Chittenango Ovate Amber Snail (*Novisuccinea chittenangoensis*)

SPOTLIGHT SPECIES ACTION PLAN

Prepared by:

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Approved:


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Date

U.S. FISH AND WILDLIFE SERVICE - SPOTLIGHT SPECIES ACTION PLAN

Common Name: Chittenango ovate amber snail

Scientific Name: *Novisuccinea* [formerly *Succinea*] *chittenangoensis*

Lead Region: Northeast Region

Lead Field Office: New York Field Office (NYFO)

Species Information:

Status: Threatened

Recovery Priority Number: 5

Recovery Plan: Chittenango Ovate Amber Snail (*Novisuccinea chittenangoensis*) Recovery Plan, First Revision. August 21, 2006 (Recovery Plan).

Most Recent 5-year Review: Chittenango Ovate Amber Snail 5-Year Review. October 5, 2006.

Threats:

- Chittenango ovate amber snail (COAS) occurs on two ledges (one of which constitutes its primary habitat) and a small talus slope on the eastern edge of Chittenango Falls (Falls), located in Chittenango Falls State Park, Madison County, New York. Species with limited range and narrow ecological niches tend to be more vulnerable and stressed by environmental change than their wider-ranging species. Current and emerging threats to this snail include the following:
- Dislodging rocks, talus, and/or vegetation have the potential to cause catastrophic loss of the sole known COAS population and its habitat. For instance, periodic floods caused by spring thaws (such as occurred in 1980, 1993, and 1995) have resulted in much of the vegetation being washed away from the primary habitat ledge where most COAS have been found in recent years. Flood events also have the potential to dislodge rocks along the Falls. The ledges may break off, destroying the primary habitat and potentially the snails themselves. In late June 2006, a massive flood event resulted in a rockslide in the COAS' primary habitat at the Falls.
- The possibility also exists that climate change could exacerbate the threats of flooding events and habitat changes.
- An introduced snail, *Succinea* sp. B, discovered at Chittenango Falls in 1985, is found throughout the habitat of *Novisuccinea chittenangoensis*. *Succinea* sp. B has been thought to be competing with COAS for food and/or breeding or wintering habitat. Another concern associated with *Succinea* sp. B has been the potential for hybridization and genetic swamping of COAS. The concerns about both overcompetition and hybridization have been allayed. In

2003, the U.S. Geological Survey (USGS) amplified and sequenced the cytochrome oxidase 1 region of mitochondrial DNA and the nuclear ITS-1 region of COAS and *Succinea* sp. B and found the two species differed dramatically suggesting no possibility of hybridization. In 2008 and 2009, a post-doctorate student from the State University of New York College of Environmental Science and Forestry (SUNY ESF) assessed potential competition between COAS and *Succinea* sp. B and preliminary results suggest that there is a density-dependent effect on COAS with greater numbers or larger sized *Succinea* sp. B; however, there may be a reprieve from any competition later in the season when most *Succinea* sp. B appear to be small in size. Removal of *Succinea* sp. B is extremely unlikely given its wide distribution throughout the watershed, and it does not appear to be necessary at this time. We await the final report from SUNY ESF for this project.

- Given the narrow endemism of the COAS and the potential for catastrophic stochastic events, efforts to develop captive rearing programs have been undertaken. To date, however, these efforts have been unsuccessful, and the status of the COAS remains highly precarious, as indicated by the 5-year review recommendation to uplist the snail to Endangered.

Goals: Three 5-year goals are identified for COAS:

- The main population objective is to maintain the extant population within its current range at the Falls.
- Determine the feasibility of establishing an *ex situ* conservation program.
- If shown to be feasible, safeguard the species against extinction by establishing a successful *ex situ* conservation program.
- Determine the feasibility of successfully establishing new snail colonies in the wild.
- If shown to be feasible, further offset the threat of extinction by initiating efforts to expand the distribution of the snail.

Measures of success:

1. COAS population trends are stable or improving (return to pre-rockslide levels or are remaining at or above an established baseline population size).
2. Habitat quality is maintained.
3. A captive rearing program is established and is showing positive survival rates at one or more facilities.
4. Captive-reared snails are released and/or translocated from the extant population to a second location at the Falls.

Actions and Costs:

Measure 1. Indication of a stable or improving population trend.

Actions:

- 1a. Conduct COAS surveys in 2010 using current protocols.
- 1b. Revise the mark-release-recapture surveys from 2003 to 2005 and 2007 to 2010 to minimize human impacts to the COAS and its habitat. Current survey protocols involve 10 surveys conducted every other week throughout the summer (generally June to September). One-meter-wide blocks are surveyed for 15 minutes across the COAS habitat for approximately 14 blocks.
- 1c. Implement annual surveys based on the newly developed protocols. We are awaiting recommendations in the final report from SUNY ESF.
- 1d. Using survey results and other pertinent data (see 2a below), conduct a population viability assessment (PVA) for COAS with the objective of verifying a baseline population size and targets for conservation efforts.

Estimated costs:

- 1a/b. Surveys and data analysis \$16,000
1c. PVA estimate of \$50,000 to \$100,000

Responsible parties:

The U.S. Fish and Wildlife Service (USFWS) is lead for these actions with assistance from SUNY ESF, New York State Department of Environmental Conservation (NYSDEC), New York State Office of Parks Recreation and Historic Preservation (NYSOPRHP), Rosamond Gifford Zoo, and potential other partners for development of the PVA.

Measure 2. Habitat quality is maintained.

Actions:

- 2a. Prevent human disturbance to COAS habitat.
- 2b. In conjunction with population monitoring (1a above), monitor essential habitat components at the extant population site.
- 2c. If any habitat degradation is observed, identify the source[s] and implement threat reduction and habitat restoration actions. Take any measures necessary to ensure snail survival while restoration is underway.

Estimated costs:

- 2a. Ongoing NYSOPRHP action - with no separate anticipated costs.
- 2b. See survey costs above.
- 2c. Costs are contingent on future conditions and cannot be estimated at this time.

Responsible parties:

NYSOPRHP is lead for 2a. USFWS/NYSOPRHP are lead for 2b and 2c with potential assistance from NYSDEC and researchers.

Measure 3. Establishment of captive rearing program.

- 3a. Conduct a workshop to determine the feasibility of *ex situ* conservation and craft a captive rearing plan.

Feasibility will be based on resilience of the wild population with regard to removing snails/eggs for captive management, genetic information indicating the necessary number of founders, technical issues, and availability of resources (funding, facilities, and expertise) for a long-term program.

If captive rearing is shown to be necessary and feasible, the plan will include components such as number of founders, annual supplementation needs, monitoring requirements, handling and release protocols, and contingency/response measures if snail survival becomes an issue.

- 3b. Initiate implementation of the captive rearing plan at one to two facilities. Complete necessary contracts or cooperative agreements, provide founders, track captive snail numbers and survival, provide snails to return to the wild.

Estimated costs:

- 3a. \$10,000
- 3b. Costs to be determined during workshop.

Responsible parties:

USFWS is lead with assistance from USGS, NYSDEC, NYSOPRHP, SUNY ESF, zoo facilities, and other researchers.

Measure 4. Introduction of COAS to one or more additional sites at the Falls.

Actions:

- 4a. Conduct habitat surveys to determine the habitat suitability at alternative sites at the Falls for possible establishment of an additional COAS colony. Identify the most suitable site[s] for translocation of wild COAS and/or release of captive-reared COAS.
- 4b. Develop an experimental design for introducing snails to the selected site[s], using an adaptive management approach including controls and monitoring protocols. In particular, include research to determine potential differences between using wild COAS and captive-reared COAS as founders.
- 4c. Based on outcomes from actions 1c, 3b, and 4a, implement introduction of snails to the new site[s] in accordance with the experimental design.

Estimated costs:

4a-c. Costs are combined into one research project and are estimated at \$120,000.

Responsible parties:

USFWS is lead with assistance from USGS, NYSDEC, NYSOPRHP, SUNY ESF, zoo facilities, and other researchers.

Role of USFWS Endangered Species Program - As lead for the species, the New York field office's Endangered Species Program will facilitate the overall conservation efforts for the species through the current Recovery Team. Example roles of the lead office include:

- Requesting, providing, and/or directing funding to achieve the goals of the action plan and Recovery Plan.
- Overseeing the implementation of the action plan and Recovery Plan.
- Providing technical assistance to NYSOPRHP regarding protection of COAS and its habitat.
- Coordinating with NYSOPRHP regarding all access to the Falls for surveys and research.
- Providing technical assistance to NYSOPRHP regarding development of outreach and education materials.
- Mitigating threats to COAS and their habitat via project reviews (consultation, technical assistance).

Role of Other USFWS Programs - Other programs likely to become involved in the foreseeable future are the Fisheries Program for population viability assessment assistance or genetics research technical assistance and Federal Aid. USFWS funding sources may include Section 6 Grants and State Wildlife Grants to the NYSDEC. Great Lakes Restoration Initiative funding may also be available for any entity conducting COAS conservation projects as the Park is within the Great Lakes basin. Recovery funds (1113) may also be a source of funding for COAS conservation efforts.