

Tagged snails to help researchers track snail population growth

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Research technician Cody Gilbertson, left, and undergraduate Ashton Yost prepare snails for transfer from an ESF lab to Chittenango Falls State Park near Syracuse. Credit: SUNY College of Environmental Science and Forestry. Credit: SUNY College of Environmental Science and Forestry

Work to restore the endangered Chittenango ovate amber snail, found only in one location inside a Central New York state park, continued this

month with the release of tagged adult snails raised in a laboratory at the College of Environmental Science and Forestry (ESF).

Called the "Chit" by those interested in its well being, the rare snail has been the subject of a conservation-focused collaboration with the U.S. Fish and Wildlife Service (USFWS), New York State Department of Environmental Conservation (NYSDEC), New York State Office of Parks, Recreation and Historic Preservation (Parks), Rosamond Gifford Zoo in Syracuse and Seneca Park Zoo in Rochester.

The snail survives exclusively alongside Chittenango Falls within Chittenango Falls State Park, about 22 miles southeast of Syracuse. Biologists have feared that a single catastrophic event could wipe out the entire population.

To address this threat, Cody Gilbertson, an ESF graduate and lead research technician in the laboratory of Dr. Rebecca Rundell, has established a captive breeding population in an ESF laboratory. She is working in ESF's Center for Integrated Research and Teaching in Aquatic Science.

In 2015, 270 laboratory-raised hatchlings were released at the park. The difference this time is that the [snails](#) are adults and large enough to be tagged so researchers can follow their life in the field.

"The fact that they're tagged is special," said Rundell, "because when we conduct our surveys next summer we will hopefully be able to track them." She is also hoping the snails will overwinter and then begin reproducing in the summer of 2018. The snails are marked with tiny numbered tags, small and light enough to be glued to a bee.

"This backup population can supplement their wild population and prevent extinction in case of a destructive event such as a storm or

rockslide," said Gilbertson.

Gilbertson likens raising the snails in the lab to the Head Start program that prepares children for kindergarten. "Like a child, if you bring them to a certain stage we hope they [the snails] are more likely to succeed," said Gilbertson.

She has spent four years researching snail husbandry from their diet to their reproductive cycles. "Their diet is incredibly important," she said, since it affects their size, shell quality and reproductive health. She found the snails prefer decomposed leaves from oak, hickory, cherry and sugar maple trees (known to biologists as "leaf litter"), but the snails only like a certain degree of leaf decomposition and leaf thickness. The preferred leaves are collected in the late spring and stored in bins to be fed to the snails during the year. This work is labor-intensive and involves the help of many ESF undergraduate biology majors, volunteers from Syracuse and Rochester zoos, and other conservation partners.

When the terrariums are changed weekly, Gilbertson layers the leaves to create a "leaf lasagna" for the snails. "They like the thin, decomposed leaves the best because they're easier to eat," she said, "and they eat around the veins of the leaves."

"Once we got that [the diet] figured out, we got high reproduction in the lab," Gilbertson said.

The USFWS is pleased with the progress Gilbertson and crew are making. "With the Chit found in just a single location in the wild, this work is critical," said Robyn Niver, endangered species biologist. "We're taking steps toward boosting the numbers of snails at Chittenango Falls, and growing the captive population. Thanks to an excellent partnership with ESF, DEC, Parks, and the zoos, the Chit is crawling its way back from the brink of extinction."

NYSDEC is also excited about the work on the Chittenango ovate amber snail. "DEC's habitat conservation efforts are a key component to protecting declining species and keeping them from becoming endangered," said DEC Commissioner Basil Seggos. "The demonstration that these captive-raised snails can be successfully released at Chittenango Falls is the ultimate success for managing a species that is only known from a single location. The maintenance of captive-raised populations will help ensure this rare snail is part of New York's fauna for generations to come."

The goal for these efforts is to boost the population, which is of great interest for the conservation partners involved, as well as the local community. The species is named for its home and its opaque, egg-shaped, amber-colored shell.

Provided by SUNY College of Environmental Science and Forestry

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