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### Snails Crawl Back From Edge

Population of state's most endangered species grows

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By Mark Weiner  
Staff writer

The Chittenango snail, New York's most endangered native animal, may have stopped a steep decline that has taken the species perilously close to extinction, scientists say.

Researchers last week finished the most detailed census ever taken of the Chittenango ovate amber snail, a unique 8,000-year-old species found only in Central New York.

Early results indicate the dime-sized snails may be increasing in population for the first time in 20 years, according to the research team.

The census found 104 of the striped snails at their only known habitat in the world, a cool and misty limestone ledge near the 167-foot waterfall at Chittenango Falls State Park in Madison County.

Scientists previously estimated the population had fewer than 25 adult snails. Five years ago, an early summer survey found only six adults ready to breed.

Jim Arrigoni, a graduate student at the State University College of Environmental Science and Forestry, said he is encouraged by what he found during a leaf-to-leaf search that began in July.

Arrigoni and Joe Brown, a reptile and amphibian keeper at Syracuse's Rosamond Gifford Zoo at Burnet Park, marked and released Chittenango snails they found during 15 weekly visits through Wednesday.

Arrigoni said the census results offer fresh hope that the snail can be saved from extinction.

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"I'm optimistic, as much as you can be with a species living in only one place in the world," he said. "These are very well-established snails. The population is probably two to four times larger than we had estimated before."

He said the Chittenango snails appeared to be in good health, despite habitat loss likely caused by an invading snail from Europe. The common invader now blankets Central New York, from the swamps near Chittenango Creek to the shores of Oneida Lake.

The apparent surge in population of the Chittenango snails is welcome news to researchers, who had been discouraged by failed efforts to breed the snail in captivity.

In 1997, an experimental breeding colony of 30 adult snails and their offspring died at the Syracuse zoo. A second colony of 40 adult snails failed to do much better at the Bronx Zoo.

State endangered species specialists had hoped the two zoos could raise up to 500 snails that would eventually be released into the wild.

Now only one captive snail survives. It is kept at the Rosamond Gifford Zoo.

This summer, the state Department of Environmental Conservation joined forces with the U.S. Fish and Wildlife Service, SUNY ESF and three Upstate New York zoos to conduct the census and come up with a new survival plan.

Robyn Niver, a recovery biologist for the New York field office of the U.S. Fish and Wildlife Service in Cortland, said her agency provided \$1,500 to help pay for the census and new research.

Niver said the Chittenango snail is a top priority.

"It's one of our most highly imperiled species within our Northeast region," she said. "We're not even looking at recovery at this point. We're just looking to stabilize the population."

The short-term plan included the weekly census in the snail habitat at Chittenango Falls. Researchers examined nine different sections of a limestone ledge on each trip, taking 15 minutes to find as many snails as possible in each section. The snails are usually found on the leaves and stems of plants such as watercress.

Each Chittenango snail was examined, measured and marked on its shell with a nontoxic pen, color-coded to match the week it was found. The snails were then placed back in the section where they were found.

The European snails, which are more numerous, were not as lucky.

"What we're doing now is removing the invading species," said Arrigoni. "I don't know how to put that politely. I guess you could say we are culling them."

The European snails were humanely euthanized through freezing, he said. Up to 300 were removed during the first week of the census. By the end of last week, 1,227 of the snails had been captured and removed from Chittenango Falls.

Niver said the removal of the invading species will likely provide only short-term relief.

"We think we had some sort of impact on that species this year, but that's really

not a long-term solution," she said. "It's not practical to go out and remove the snails each week."

Instead, the scientists are developing a plan that will detail the tasks necessary to stabilize the Chittenango snails.

Among the goals is to conduct new genetic research to confirm the Chittenango snails and the invading snails (thought to be cousins of *Succinea putris* of Europe) are two distinct species. Scientists say the invading snails probably arrived in the United State on ships from Europe, much the same way the invading zebra mussels arrived in the 1980s.

The research also will attempt to find out if cross-breeding has taken place between the two snail species, Niver said.

In 1985, the Academy of Natural Sciences in Philadelphia verified the Chittenango snails are a unique species, identified by the scientific name *Novisuccinea chittenangoensis*.

Niver said the plan, which should be completed early next year, will look at similar waterfalls around New York.

"We're going to be doing some surveys at other waterfalls to see if by chance there are any other Chittenango snails in the state," she said. "In the future, we may want to introduce them to another site if the exotic species isn't there."

The plan also calls for three Upstate zoos to eventually take part in the recovery effort - the Rosamond Gifford Zoo in Syracuse, Seneca Park Zoo in Rochester and the Buffalo Zoo.

Brown, of the Rosamond Gifford Zoo, said the snails should receive the same level of public support as other better-known endangered species, such as the giant panda.

"It's important for people to know that it's not just the 'cute and cuddlies' that we care about as endangered species," Brown said. "These snails are really underrated in their importance to the world's ecosystems."

The snails are part of the rich biodiversity that forms a balanced and healthy food chain. Some snails also have been found to have unique chemical and anti-fungal properties that could benefit humans.

"You can certainly argue philosophically, 'Is it worth the effort and commitment of resources?' But I think we contributed to the demise of the species, so we have an obligation to preserve and protect it," Brown said.

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