

Chattanooga Zoo helps in fight for vanishing amphibian

By Michael Stone

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In an effort to help save the disappearing hellbender salamander, zookeepers from the Chattanooga Zoo have teamed up with other keepers and researchers to find out how they can breed the species in captivity for possible reintroduction into the wild.

Hellbenders, which can grow as long as 29 inches and live to be an estimated 80 years old, have been noticeably declining in range and population since widespread documentation of the species began about 20 years ago, researchers say.

"We're coming into crunch time with this species," said David Hedrick, lead ectotherm keeper for the Chattanooga Zoo. Ectotherms are animals that can't control their own body heat.

"The next 20, 30 years are going to determine what's left in the wild, if much of anything," Hedrick said.

Hedrick and Rick Jackson, Chattanooga Zoo's curator of ectotherms, met hellbender and reproduction experts at the Hiwassee River on Saturday to collect sperm samples. The Hiwassee, they said, is one of the few waterways left in the United States that provides ideal conditions for hellbenders.

"They like clean, clear, swift-flowing cool water, and they're really a fabulous indicator of water quality," Hedrick said.

Construction, agriculture, mining and other human activities that disturb rivers and streams are displacing hellbenders, he said.

Salamander sperm samples were successfully frozen for the first time last year, and can theoretically last forever, experts say.

The problem is how to breed hellbenders in captivity.

"The Holy Grail of all of this work would be to breed them (in captivity) 'cause it's not been done," Jackson said.

There are many theories on why hellbenders don't reproduce in captivity. The Chattanooga Zoo is experimenting with two possibilities, Jackson said: lunar cycles and slight changes in environment.

"Basically our goal is to replicate the Hiwassee River," Jackson said of the zoo's indoor enclosure.

The Chattanooga Zoo, which began its hellbender research in early 2009, has five of the amphibians.

QUICK FACTS

Hellbender salamanders

* Generally nocturnal

* Diet is mostly crayfish

* Rarely leave the water

* Reproduce externally (the female lays eggs; the male fertilizes them and cares for them)

Sources: The Nature Conservancy, Chattanooga Zoo

Though the hellbender is not listed as endangered in some states, Jackson said, there isn't enough data to classify them in Tennessee.

"What tends to happen is there are more people out looking at cougars and your larger mammals," he said. "When you go to reptiles and amphibians, a lot of times it's just a lack of researchers."

International effort

The experts who went on the trip Saturday were from the Nashville Zoo, Lee University, Michigan State University and the Antwerp Zoo in Belgium.

"What I love is that it's a great collaborative effort," said Dalen Agnew, a professor of reproductive pathology at Michigan State. "We've got people from Europe, from Nashville, from Michigan, from Chattanooga all working together for a pretty cool species."

Robert Browne, an amphibian researcher from Antwerp Zoo, said Saturday's effort was a first of its kind.

"This is the first time in the world that we've tried sampling of a wild (amphibian) population," he said. "This is a very important project."

Hedrick said one of the reasons the hellbender attracts researchers is because the fossil record has dated the species back 150 million years. In that time, the animal has remained "almost exactly the same," he said.

"They're just really unchanged through time," Hedrick said. "So looking at them is kind of like looking back in time."