

New study shows river turtle species still suffers from past harvesting

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(Phys.org)—University of Florida researchers studying river turtles in Missouri found populations of the northern map turtle have not recovered from harvesting in the 1970s.

Scientists used data collected by [Florida Museum of Natural History](#) herpetology curator Max Nickerson in 1969 and 1980 as a baseline, then surveyed the same stretch of river in the Ozarks in 2004 to determine the northern map turtles had not recovered from a previous 50 percent population loss caused by harvesting, likely for food. River turtles help ecosystems function by cycling nutrients and maintaining food web dynamics. Assessment of the northern map turtle, a protected species in some states, is essential as increasing [human populations](#) and global warming further alter its habitat. The study was published Sept. 14 in Volume 3 of *Copeia*, and is scheduled to appear online this week.

"The importance of river turtles is really underplayed," said lead author Amber Pitt, a Clemson University postdoctoral research fellow who conducted research for the study as a UF graduate student. "River turtles are long-lived, rely on the same water resources that we do and can serve as indicators of water quality. People should be concerned if turtles are impacted by poor water quality because we are likely being affected, too."

Inhabiting river systems from southern Arkansas to Quebec, the northern map turtle, *Graptemys geographica*, is among the most wide-ranging map turtles in the U.S. They are dietary specialists and depend mainly on

snails, making the species especially susceptible to biodegradation. Formally known as the common map turtle due to its wide [geographic distribution](#), its name was changed in 2000 so people would not assume it was abundant, Pitt said. The northern map turtle is listed in Appendix III of the Convention on International Trade in Endangered Species of [Wild Fauna](#) and Flora and this research may be used as a guideline for conservation or protection of other [turtle species](#).

Scientists determined harvesting was likely the cause of the 50 percent [population loss](#) between 1969 and 1980 based on analysis of data published by Nickerson and Pitt in the Florida Museum of Natural History Bulletin in August. Data showed fewer adult females, which are larger than males and preferred for the food trade, and local residents confirmed turtle harvesting occurred in the river, Nickerson said.

"This shows that harvesting, even if it's a one-time event, can cause a turtle population to significantly decline and remain impacted for decades, because this species doesn't reproduce quickly," Pitt said. "It was really discouraging to see that even without the pressure of further harvesting, they couldn't recover over that long time period, which is partially due to their biology but may also be associated with habitat degradation and disturbance."

Researchers used similar methods to survey the nearly 3-mile stretch of the North Fork of White River in Ozark County, Missouri, in 2004 by snorkeling to locate, tag and record information about the turtles. Based on the 2004 examination of the river, habitat degradation was apparent because of increased siltation, sedimentation and algal blooms.

"What's happening in these big spring-fed rivers is very important," Nickerson said. "When you clear the banks of a river, you increase siltation, which affects the food sources, reproduction, plant growth, species composition and basic ecology of that section of the stream, and

perhaps the entire river."

River degradation has been partially caused by human recreation, which drastically increased by 2004, Nickerson said. People swimming and boating also frighten turtles so they may not bask as much as needed to maintain their health and maximize egg production.

Although scientists generally agree many turtle populations are declining worldwide, little has been published on river turtle communities, said Don Moll, a professor emeritus at Missouri State University who co-authored a textbook on freshwater turtles.

"This is a very important study because it follows the dynamics of this turtle community over a more than 30-year time period, and really it's the only published river turtle study I can think of that does that," Moll said. "It's a real contribution in that sense—it's so unique."

One concern with attracting conservation efforts to river turtles may have to do with their small size because they do not garner as much public attention as larger marine species, Pitt said. Adult female northern map turtles are about 11 inches long.

"Often times with conservation, you have the charismatic mega fauna that people care about, such as sea turtles—everybody cares about sea turtles, including me," Pitt said. "But river turtles are facing just as many threats as sea turtles. People are also harvesting river turtles and there are very few laws in place to stop this harvest—it's a global epidemic that is causing turtle populations to be wiped out."

Provided by University of Florida

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