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Wood turtle researchers step in to help

By John Myers
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NORTH OF DULUTH — About 200 yards off a railroad grade, researcher Maddy Cochrane waved her antenna in a semicircle to hear the strongest beep on her VHF radio receiver, then bolted off in that direction.

The forest was thick with underbrush, big aspen trees and mosquitoes, and followers had to walk fast to keep up.

It didn't take long for the research team to find No. 2035 — a 19-year-old wood turtle that is blissfully unaware of its role in preserving its own species.

Cochrane grabbed the turtle and held it up, its stubby legs flailing away.

"They all have their own personalities. Some just sit there. Others try to bite you. ... This one is pretty standard. She's not a fan, but she's not putting up too much fuss," Cochrane said. "They will pee on you, though, especially at nesting time."

Surprisingly, adult female wood turtles like this one spend a good portion of their summer and fall on land eating berries, worms, mushrooms and insects, sometimes miles from their favorite river.

No. 2035 is one of two-dozen wood turtles walking along the forest floor this summer in northern Minnesota fitted with radio transmitters so researchers can find them quickly when needed, as part of a multistate effort to find out why wood turtles are declining in numbers, to determine their most critical habitat near rivers and to try experimental projects to save as many turtles as possible.

No. 2035 was also fixed with a thermometer to track her favored temperature range. And she carries a GPS unit epoxied to her shell that records her whereabouts almost continuously.

Unlike larger animals, which can carry GPS units that send data wirelessly back to scientists' offices, the turtle units are smaller and more basic.

“We have to recapture them to change out the batteries and retrieve the data from the GPS units. It’s a little more work,” Cochrane said as she used a socket wrench to change the turtle’s GPS batteries.

The wood turtle’s shell has obvious rings that can be used to tell its age, much like a tree. The underside of a female wood turtle is yellow and black, and each underbelly pattern is unique, like a human fingerprint. Researcher Kelcy Huston dutifully recorded all the numbers Cochrane called off. No. 2035’s shell was about 8 inches long and 6 inches wide. She weighed 2.6 pounds.

Long lived, slow reproduction

Pity the poor mother wood turtle, like No. 2035. She can live to be more than 50 years old. But it takes her 15 years or more to reach sexual maturity. She lays one clutch of a dozen or so eggs each year. And more often than not (virtually every time in one study), some predator digs up the eggs and eats them.

Heavy nest predation is at least one reason why wood turtles are declining across most of their range, so much so that they are being considered for federal Endangered Species Act protection.

“Of the known nest sites we have (documented), there’s nearly 100 percent predation on the eggs,” researcher Ron Moen said. “That’s the bad news. But the good news is that we have documented reproduction every year since the 1980s. So they are reproducing somehow. Some are surviving (to adulthood). We just don’t know how many or if it’s enough.”

Moen — who has experience using GPS on lynx, moose and bats — is the head researcher on the wood turtle project for the Natural Resources Research Institute at the University of Minnesota Duluth. Funding for the project comes from the U.S. Fish and Wildlife Service and the Minnesota Department of Natural Resources, which used money from the state’s nongame wildlife fund — revenue from the “loon line” on tax-return forms and from nongame license plates. Some state conservation sales tax money also is going to habitat restoration efforts for turtles.

The Minnesota Geological Survey and U.S. Forest Service also have good data on wood turtles in Minnesota. More than 600 individual wood turtles have been studied in recent years and researchers now know more about them than ever before.

“It’s kind of neat to be working on something that’s as old as I am,” Moen said.

Across Minnesota, some turtle species are dong well. Painted and snapping turtles, which use a wide range of ponds and lakes for habitat, are thriving. But habitat-specific species like Blanding’s and wood turtles are not; niche species are losing their niche habitat.

There’s fair news to the north, where some wood turtle populations are holding their own when compared to surveys in the 1990s. There’s worse news to the south of Minnesota, where wood turtles are declining in most areas, said Maya Hamady, DNR nongame wildlife specialist who accompanied the group on the turtle trek last month.

Researchers have found a wide variety of critters that eat wood turtle eggs. Badgers in one area dug up multiple nests. In one spot, researchers watched as a raven waited for a turtle to lay her eggs, bury them and leave, before the raven dug them up and carried them off. Skunks, otters, raccoons, fox and the occasional bear take their toll on wood turtle eggs or baby turtles. (Trail cameras help document the perpetrators.) Big fish and snapping turtles eat baby wood turtles in the water.

But it's not just wild critters that are spurring the wood turtle decline. They're losing their favored riverside egg-laying habitat at a rapid pace as people build more and more waterfront property. Wood turtles are getting run over and killed on roadways as they cross each spring searching for sandy hillsides near rivers to lay their eggs.

And because wood turtles are relatively modest-sized (No. 2035 was average) and live so long, they are favorites of the pet industry in the U.S. and especially Asia. There's a lucrative, global, illegal trade in wild wood turtles even though they are protected in virtually every state and province where they live.

"We don't know how much of an issue (turtle poaching) is in Minnesota. But we want to be careful," Hamady said.

That's why the DNR insisted that the News Tribune not disclose specific locations where researchers are studying wood turtles in Minnesota. Suffice it to say it's across the eastern third of the state, from St. Louis County to the Iowa border.

Saving turtles, not just studying

Part of the NRRI study, however, goes well beyond counting and studying wood turtles. They are taking pre-emptive action to protect wood turtle nests in hopes more will survive long enough to reproduce.

The U.S. Fish and Wildlife Service "is looking for some solutions, not just data. To get the funding you have to do some sort of conservation act," Moen said. The feds kicked in another $500,000 this year for Minnesota, Wisconsin and Iowa to study and protect wood turtles, and the state added money of its own.

So Cochrane, Huston and other researchers have been digging up the most vulnerable turtle nests they find and re-burying the eggs in safe places — away from roadside hazards and, hopefully, away from natural predators.

"We have to move pretty fast. Last year we saw them lay eggs one day and (when we) went back the nest and the eggs were already gone," Cochrane said. They pick sun-warmed areas with little vegetation to re-bury the eggs so they hatch on time in August.

It's hoped the cages used to cover the new nests will give the little turtles a fighting chance to make it. The Wisconsin DNR is doing the same thing on its side of the state line. The efforts copy projects underway for years to protect sea turtle nests on ocean beaches in an effort to keep people and predators from damaging eggs or baby turtles before they can scurry into the ocean.

The DNR also is working with some private-property owners near rivers to build and secure potential wood turtle nesting sites to keep the females away from roads and predators.

Even if you can protect nests, there are other issues. Road and driveway construction and logging activity near rivers can destroy habitat, as can farming — in southern Minnesota, wood turtles are often found in farm fields near rivers. And flooding along rivers, which may be increasing due to wetland loss and larger rain events spurred by global climate change, may be sloughing good nesting habitat into streams. Relocated nest sites are picked that are less prone to flooding.

Along some forest and county roads, researchers have placed erosion control fencing, the short fabric fences you see near construction sites, in hope of keeping nesting females of roads and to push them toward human-prepared, protected nesting sites. In one place they are using electric fencing to keep predators away. At other sites, wire cages have worked well to keep critters away from eggs.

“We had turtles hatch from inside our (cages) last year,” Cochrane said.

Saving nests along a few Northland rivers may be the easy part. No one is sure yet what might work to help wood turtles overcome the odds stacked against their survival.

“It might be working in one area and not in another. So we try different things,” Hamady said after wood turtle No. 2035 was set free to wander again. “Sometimes the (scientific) literature says one thing and we find something else. But we keep trying.”

About wood turtles

Wood turtles spend their winters underwater in rivers or streams, where they hide in bank undercuts or near logjams. They emerge in late April, basking on logs or riverbanks on sunny days. Breeding is most frequent in the spring. In late May or June, females move from their winter streams to nesting sites — and are vulnerable to vehicles while on the way. Females dig nests in exposed sandbars, along stream banks or other open, well-drained, usually sandy areas. If the eggs aren’t dug up by a land-based predator, hatchlings generally emerge in late August and head quickly into the nearby river, where they risk rapidly becoming food for big fish or snapping turtles. Adult females will continue to spend time on land until October, when they head back into the water to spend another winter.

Center sues to list wood turtle as endangered

The U.S. Fish and Wildlife Service last year agreed that the wood turtle may be a candidate for federal protections under the Endangered Species Act but then stopped short of taking any action.

Now, the Center for Biological Diversity is trying to force the government’s hand.

The Center in March filed suit in federal court saying the wood turtle is declining in every state where it exists and that states aren’t doing enough on their own to stop the species from going extinct.

Collette Adkins, a Minnesota-based attorney and biologist for the Center for Biological Diversity, said federal protections will offer a more coordinated approach, including protecting critical habitat for a species that prefers specific areas near streams.

Federal status also could boost penalties for turtle poachers.

“While the wood turtle is protected by most states across its range, state protection in Minnesota does not come with any habitat protections. And state enforcement of laws against wild collection (poaching) is nearly nonexistent,” Adkins said. “Listing would help wood turtles by increasing enforcement and penalties for illegal wild collection for the pet trade, designation and protection of critical habitat and development of a recovery plan.”

In addition to Minnesota and Wisconsin, wood turtles are found in Connecticut, Iowa, Maryland, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia, as well as Ontario and Quebec.

It’s not clear when the suit might be heard in federal court.