

Changes in habitat leave bog turtle nowhere to run

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The bog turtle has had a reason to feel threatened for years. Now it's official - it is.

The U.S. Fish & Wildlife Service in November classified the reptile, one of North America's smallest turtles, as "threatened" under the federal Endangered Species Act.

The number of bog turtles has declined sharply because of the continued loss and degradation of its wetland habitat. That scarcity, in turn, has made it increasingly valuable to poachers who have picked off many of the remaining turtles for illegal sale. The combined effect of illegal collection and dramatic habitat loss has, in effect, made the bog turtle a species with a price on its head and no place to run.

The northern population of the bog turtle, which ranges from Maryland to New York, has declined by half over the last 20 years, according to the USF&WS. Historically, some of the best bog turtle habitat is in portions of Maryland and Pennsylvania that are within the Bay watershed.

Biologists say the same type of sprawled, landscape-altering development that is considered a major threat to the health of the Chesapeake is also largely to blame for the demise of the turtles and their wetland habitats.

"These guys are associated with wetlands that are often the headwaters of streams, where water comes out of the ground and eventually makes its way down to the Bay," said Scott Smith, a biologist with the Maryland Department of Natural Resources. "We're having impacts on these sites. If you look at the landscape, the protection of these sites is also linked to the health of the Chesapeake Bay."

That, he and others say, is because the degradation of bog turtle wetlands often reflects the cumulative effects from land use changes in areas outside the wetlands - and outside regulatory authority. Wetland regulations of recent years help the bog turtles, but not enough, biologists say. That's because regulatory programs tend to view wetlands in isolation. While

bog turtles live almost exclusively in certain types of wetlands, many of the factors that ultimately affect the quality of their habitat are intertwined with the unregulated activities happening on adjacent land.

"I don't think the outlook for this animal in Maryland is great," Smith said. "Even though we have the wetland protection that we have, the secondary impacts are really killing us. They are really affecting the quality of the wetlands."

The outlook in Pennsylvania is similar. "When you find a bog turtle wetland, you might be able to slow [development] down in terms of something that is going on specifically within the wetland, but you can still build houses and encroachments all the way around it," said Andrew Shiels, Nongame and Endangered Species Unit Leader with the Pennsylvania Fish and Boat Commission. "But no legal buffer is required."

Bog turtles generally live in small, spring-fed wetlands with shallow rivulets of water, lots of mud for them to borrow into, and sun-bathed sedge tussocks on which they lay their eggs.

Historically, these shallow, open wetlands were maintained by the grazing of woodland bison, elk and deer, which would delay the growth of tall plants and trees that would eventually shade nesting sites making them useless to bog turtles. When sites were overgrown, the turtles could migrate to nearby wetlands created in the wake of **beaver** dam activity.

This type of wetland succession and migration is no longer possible in many areas because wetlands are often contained and isolated by outside activity, such as the construction of roads and subdivisions.

"The corridors that these animals used to move back and forth between wetlands, and to have contact between populations just aren't there anymore," said Tony Davis, of the Pennsylvania Chapter of The Nature Conservancy. "Whether it's highway development or homes or whatever, these animals can't move around much anymore. If they do, they get squashed."

Trapped within isolated wetlands, the bog turtles are at the mercy of a host of unregulated "secondary" impacts from development. Wells from new homes often dry up the springs that feed the wetlands. Land disturbance allows exotic species, such as multiflora rose, to invade wetlands and dry them up or shade nesting tussocks.

Nearby development also threatens the turtle by creating habitat for skunks, raccoons, opossums and other species that may prey upon bog turtle eggs.

Sometimes, wetland habitat is lost through unregulated activities within the wetlands themselves. When one Pennsylvania landowner decided to expand his yard, he simply began

mowing a bog turtle site - while it is illegal to fill a wetland without a permit, it is not illegal to mow it. "He can mow it down to nothing, and he doesn't need a permit for it," Shiels said, "and he's just eliminated his bog turtle habitat."

Even when permits are required, shallow, muddy bog turtle wetlands have often been viewed as "less valuable" than others, said Carole Copeyon, a USF&WS biologist.

"People tend to think that important wetlands are those that have open water, because people often associate waterfowl with wetlands, and these are not those types of wetlands," Copeyon said. "Because of that, many people judge them as useless, wet land."

In other cases, people have taken advantage of the springs that feed the sites and excavated them for ponds, she said. The end result, for the bog turtle, is the same.

The cumulative effect can be told in numbers. The number of bog turtle sites in Maryland has dropped 43 percent - from 178 to 91 - in the last 15 years. Only a handful of remaining sites are considered to have self-sustaining populations. "You end up with what we call the 'living dead,'" Smith said. "Over time, these populations are going to blink out."

In Pennsylvania, the story is similar. Surveys have documented a drop from 76 historic sites to about 50 locations in 14 eastern counties. Populations once found in the western part of the state have disappeared. Biologists say only about three of those sites support healthy populations.

With habitat loss giving the turtles no place to run, they have become even more vulnerable to pressure from poachers. The turtles are prized by some collectors because they are considered the rarest North American turtle, and they are also one of the smallest, with the adult shells measuring just 3 to 4.5 inches in length. They are also desired because of the large, conspicuous bright orange, yellow or red blotches on each side of their head.

But the bog turtle is so slow to reproduce that taking even a few can jeopardize a colony. The female does not reach maturity until it is 5 to 8 years old. Then, it may lay a clutch of two to six eggs, but infertile eggs are common. Also, not all females lay eggs every year. A poacher can dramatically reduce the reproductive potential - and therefore the future viability - of a bog turtle site by removing a handful of individuals.

"Each time they take one of those breeding adults out of there, that's a major dent to a small population," Shiels said.

Under the federal Endangered Species Act, a "threatened" designation means that the turtle is likely to become endangered if protective measures are not taken. An endangered species is

one that could become extinct without protection.

Federal listing can help prevent harm to the turtle or its habitat throughout its range. It would require federal agencies to consult with the USF&WS on federally funded projects, such as highway construction, which could affect bog turtle habitat.

Besides helping to combat the illegal sale of bog turtles, Copeyon said the federal listing would probably make money available to research the species and to protect habitat, perhaps through purchase or conservation easements - agreements with landowners that protect the habitat into the future. It may also spur efforts to improve existing habitats.

The service would also develop a "recovery plan" outlining how the species could be restored and defining what actions would result in the turtle's being taken off the list. For example, such a plan could establish a specific number of healthy bog turtle colonies that would be required to de-list the species.

Besides protecting the northern population of the bog turtle, the federal action also prohibits the sale of the southern population of the bog turtle, which occurs in the southern Appalachian Mountains from southern Virginia into South Carolina. The southern bog turtle looks similar to the northern turtle, making it difficult for pet dealers to distinguish between the two. But because the southern population is not threatened at this time, the habitat protection requirements would not apply to that species. Ultimately, Copeyon said, bog turtle protection will depend on people who own most of its habitat. "There is nobody out there who is better qualified to watch the land than the individual landowners," she said. "Some people, once they find out they have bog turtles on their property, become quite protective of them."

Also, some activities such as livestock grazing can benefit bog turtles by impeding the spread of nonnative plant species into the wetlands that can shade nesting areas and dry up the ground. "Bog turtles and humans can co-exist," Copeyon said.



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