

by Kathryn Reshetiloff

An Unconventional Approach to Habitat Conservation



The bog turtle is one of North America's smallest turtles, measuring only 3-4.5 inches in length. It is recognized by its light brown to ebony shell and bright orange, yellow or red blotch found on each side of its head.

Photos by Scott A. Smith/Maryland Department of Natural Resources

Last year, biologists in the U.S. Fish and Wildlife Service's Chesapeake Bay Field Office tried something new to protect a rare reptile, the bog turtle (*Clemmys muhlenbergii*). They began their work one tree at a time. They were not saving the trees, however; they were getting rid of them. As Service biologists, they usually create habitat by *planting* trees and other vegetation. But trees and other invading vegetation are swallowing up the last remnants of bog turtle habitat in the northern portions of Carroll, Cecil, Baltimore, and Harford counties, Maryland.

Bog turtles are sparsely distributed from New England south to northern Georgia. A 250-mile (400-kilometer) gap within the range separates the species into distinct northern and southern populations. The northern population extends from southern New York and western Massachusetts southward through western Connecticut, New Jersey, and eastern Pennsylvania to northern Delaware and Maryland. The southern population occurs in the Appalachian Mountains from southwestern Virginia southward through western North Carolina, eastern Tennessee, northwestern South Carolina, and northern Georgia.

Bog turtles face a variety of threats, including habitat degradation and fragmentation from agriculture and urban development, illegal trade and collecting, and habitat succession due to invasive exotic and native plants. These problems led the Service to list the northern population, which is the more vulnerable, as threatened.

Open habitats dominated by grasses and sedges are ideal for the bog turtle. Unfortunately, red maple (*Acer rubrum*) and multiflora rose (*Rosa multiflora*) are invading bog turtle wetlands. The invading trees and shrubs kill the grasses and sedges through excessive shading and dry out the wetland through transpiration. The result is an even better seed bed for more red maple and multiflora rose. This rate of succession quickens because the red maple and multiflora rose absorb and transpire more water than the existing emergent vegetation. As a result, the wetlands become drier, which favors the natural regeneration of more red maple and multiflora rose.

Once red maple and multiflora rose dominate a wetland, the bog turtles have to relocate. Unfortunately, most bog turtle wetlands in Maryland are isolated, which means there are no safe corridors for these tiny turtles to seek out another habitat. A turtle may be crushed by a vehicle while crossing a road, killed by a





John Frederick and Lori Erb of the Maryland Department of Natural Resources survey a bog turtle site.

raccoon or dog, or starve to death while searching for suitable habitat.

The Maryland Department of Natural Resources has conducted two bog turtle surveys (1976 and 1992-93). In 1976, bog turtles inhabited 177 wetlands. By 1993, only 84 wetlands potentially contained viable populations of bog turtles.¹ This constitutes a 53 percent reduction in wetlands inhabited by bog turtles in 17 years. As more time passes, the rate of vegetational succession in these wetlands increases and the problem becomes more difficult to combat. With no aggressive vegetation control program, fewer than 42 wetlands will contain viable bog turtle populations by 2010, potentially pushing the bog turtle into

¹Smith, Scott. 1994. Report on the status of the bog turtle (*Clemmys mublenbergi*) in Maryland. Report to the U.S. Fish and Wildlife Service, Chesapeake Bay Field Office.

the endangered status. In response, the Service's Chesapeake Bay Field Office teamed up with the Maryland Department of Natural Resources and the National Fish and Wildlife Foundation to control invasive plants and conserve Maryland's bog turtle population.

To control invasive red maple and multiflora rose in bog turtle wetlands, Service biologists applied herbicides in six bog turtle wetlands. For red maples, capsules containing the product Garlon 3A were injected into the trunks of trees located on the perimeter of the wetlands. Red maples growing in the wetland proper were controlled with Rodeo (an herbicide approved for the use in water) by employing the "hack-and-squirt" method. Last year, nearly 40 acres (16 hectares) at six bog turtle sites were sprayed, eliminating almost all of the multiflora rose. Survival surveys of red

maples will be conducted late this summer. Maryland Department of Natural Resources biologists will continue management efforts this summer and fall.

To determine the effects of these treatments on bog turtles, biologists from the Service's Endangered Species and Partners For Fish and Wildlife programs are assisting the Maryland Department of Natural Resources with bog turtle surveys. Through status surveys, vegetation control, and land conservation easements, the Service will target its protection and management efforts to those areas with the best potential for providing future habitat for bog turtles.

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