

# Bog Turtle Survey Protocols

Project Development and  
Environmental Analysis Branch



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## **Purpose**

The purpose of this procedure is to describe the survey protocols for Bog Turtles.

## **Responsibility**

It is the responsibility of the Environmental Specialist to determine if a project wetland is potential bog turtle habitat and to follow the steps documented in this procedure.

## **Scheduling and Time Constraints**

The final report due date is set by the Project Manager. This date will be based on the date needed for the NRTR, BA, or to meet the project's let date, but is subject to the activity period of the target species (Bog Turtle).

## **Procedures**

To determine if a project wetland is potential bog turtle habitat, the following steps should be used:

**Procedure 1:** Assess wetlands in project study areas to determine if it is a potential bog turtle habitat. If so, use the following steps:

- Step 1.** Perform a visual assessment of the project area. (Visual assessments can be performed year round).
- Step 2.** Examine potential bog turtle habitat by 3 criteria, or 3-S system (Spring-fed, Soggy, and Sunny):

- Suitable-hydrology (Spring-fed) – all bog turtle habitats are spring-fed wetlands, with water at or near the surface. If you do not need boots to walk into the wettest portion of the site, it is unlikely to be potential bog turtle habitat.
- Suitable soil types (Soggy) – the wetland should have mucky soils throughout much of the year, although in dry years the wettest sections may be near the springheads. (Soil types identified in NC bog turtle sites include Chewacla, Codorus, Hatboro, Nikwasi, Toxaway, Wehadkee, and alluvial soils.
- Suitable vegetation (Sunny) – the wetland should have open, sunny areas dominated with sedges and rushes, and often with a shrub component. Many bog turtle habitats are within or adjacent to grazed pasture or bottomlands.

If the wetland is identified as potential bog turtle habitat, then a survey for presence of bog turtles is needed.

**Step 3.** If the wetland in the project area is identified as potential bog turtle habitat, determine the type of survey (visual techniques or use of traps) that would be appropriate.

- Visual Surveys are performed during the turtle's spring emergence and breeding/nesting periods (April 1 – June 15). If the survey is performed after June 15, care must be taken to not trample nests, and dense vegetation makes it more difficult to locate turtles after this time. (Bog turtles begin to go into their winter dormancy period by the end of September and surveys after September will often fail to locate turtles.)
  - Air and water temperatures should be at least 50 degrees.
  - Cloud cover should be less than 50%, and surveys should not be conducted during electrical storms.
  - A minimum of 3 individuals should participate in the survey. Bog turtles are difficult to find, so the survey team should have at least one experienced and qualified bog turtle surveyor.
  - At least 3 surveys per wetland, separated by 5 or more days, are necessary to accurately assess the site for presence of bog turtles. Perform at least 2 of these surveys in May.
  - Search sites for at least 2 hours, or 1 hour per acre of habitat.
  - Document the survey accurately and enter the documentation on a field data sheet with the following information recorded: site size, survey date(s), time spent at site, surveyors' names, weather conditions, and presence or absence of turtles. If turtles are found, their date, age and sex must be recorded.
- Trapping Surveys can be conducted from May 1 – August 15, but trapping results decrease after June because many turtles leave the main wetland to forage in meadows and peripheral seepages. The trapping surveys should

only be conducted by an experienced turtle survey team since turtles are vulnerable to predators while in traps.

- High potential wetlands located in the same drainage as known bog turtle sites should be trapped even if visual techniques failed in previous surveys.
- Prime areas of each site should be trapped, with a minimum of 20 traps per acre of habitat. Place traps in meadow vole runs or shallow rivulets where turtles are likely to be found moving about the wetland. Cover traps to shade any captives and check the traps daily.
- Only one turtle is needed to confirm a site as a bog turtle habitat. Remove the traps from the habitat after 1 capture unless a population study is needed.

## **Background**

The bog turtle (*Glyptemys muhlenbergii*) is Federally listed as Threatened Due to Similarity of Appearance (T/SA) and State-listed as Threatened (T). It has a State ranking of S2 (imperiled in NC because of rarity or because of some factor(s) making it vulnerable to extirpation from NC) and a Global ranking of G3 (either very rare and local throughout its range or found locally, even abundantly at some of its locations, in a restricted range or because of other factors making it vulnerable to extinction throughout its range). The Federal T(S/A) designation bans the collection and interstate and international commercial trade of bog turtles from the southern population as outlined in Section 9 (Prohibited Acts) of the Endangered Species Act of 1973.

## **Policy, Regulatory, and Legal Requirements**

- [Endangered Species Act of 1973, Section 9](#)
- [North Carolina Endangered Species Article 25](#)
- [Endangered Species Act of 1973, Section 1540](#)
- [Lacey Act \(16 U.S.C. SS 3371-3378\) Overview](#)

## **Warnings and Precautions**

A North Carolina endangered species permit is required before conduct bog turtle surveys. The picking up and photographing of a bog turtle is considered take. This permit can be gotten in lieu of an FWS permit because NC is a reciprocal state. Contact the [NCWRC](#) for a permit application.

## **Resources and Tools**

### References

Somers, A.B., K.A. Bridle, D.W. Herman, and A.B. Nelson. 2000. [The Restoration and Management of Small Wetlands of the Mountains and piedmont in the Southeast: A Manual Emphasizing Endangered and Threatened Species Habitat with a Focus on Bog Turtles](#). Natural Resources Conservation Service, Watershed Science Institute.

Palmer, W.M. and A.L. Braswell. 1995. Reptiles of North Carolina. The University of North Carolina Press, Chapel Hill. 412 pp.

### Survey Forms

- [Bog Turtle Habitat Evaluation – Field Form](#)
- [Bog Turtle Habitat Survey Report Template](#)

### **Contacts**

- For suggestions to change this procedure contact: Karen Capps (919) 431-2003
- For questions about performing this procedure contact: Dennis Herman, (919) 431-6624

### **User Access**

Restricted NCDOT, FHWA, MPO, RPO, Consultants, etc.

### **Flowchart**

N/A