WOOD TURTLE:
BEST MANAGEMENT PRACTICES FOR HABITAT IN BIRD CONSERVATION REGION 14

Introduction

The Wood Turtle (*Glyptemys insculpta*) is a medium-sized turtle, recognizable by its sculpted shell and orange coloration on the neck and forelimbs. Formerly thought to be one of the most terrestrial turtles, it is actually found as frequently in water as on land. Development of wooded river banks, increasing road networks that result in direct mortality, and widespread commercial collection are factors contributing to population decline. It is listed as a "Species of Greatest Conservation Need" (SGCN) in the Wildlife Action Plan of all six states in BCR 14.

Habitat Needs

Wood turtles frequent slow-moving rivers and streams with hard sand or gravel substrate but make extensive use of surrounding uplands during the summer (within 300 yards of river/stream). A mosaic of river or stream with overhanging riparian vegetation, field, forest, dense shrub thicket, and bare sand for egg laying is important. They are probably unlikely to occur above 2000 feet elevation.

Habitat Management Practices

Timing Your Habitat Management

Whether you are mowing, prescribed burning, or tree harvesting, the best means to conserve wood turtles while maintaining important habitat is to avoid management during their active season (May 15 – September 15).

Mowing to Maintain Fields, Meadows, and Shrublands

Maintaining fields, meadows and shrublands is important to maintaining good wood turtle habitat. Following are guidelines for doing so while minimizing direct mortality of wood turtles.

1) Long Term Habitat Maintenance – If periodic mowing is the sole method used for maintenance, woody plant cover on the site will likely increase over the long-term, and mowing during the active season will be necessary to inhibit woody plant invasion. In some years, very frequent mowing may be required to reduce woody plant abundance. If this repeated mowing treatment is required in a given year, vegetation should be mowed frequently enough that it does not provide habitat for turtles in that year, provided that turtle habitat is present adjacent or nearby to mitigate the temporary loss of use of the site
2) Percent Mowed - For sites with > 10 acres of grassland/fields it is recommended that no more than 25%-50% be mowed in any given year.
3) Mowing Height – If mowing during the active season is necessary, retention of mowing stubble to 7 or even 12 inches will reduce mortality, reduce blade wear, and will leave important cover for animals.

4) Directionality - If mowing during the active season is necessary, start mowing from the center of the field and use a back-and-forth approach, or large circular pattern, to avoid concentrating fleeing animals where they may be killed or stranded. In addition, leave an unmowed 30 ft strip around the perimeter of the field and mow this area last. Most turtles are found in these areas and this provides time for them to react to the mowing activity and move out of the area.

   There are three exceptions to this general rule. The first is when a stream is near the field; in these cases it is best to start mowing the side furthest from the streams edge first and work your way towards the stream. The second exception is when the field is bordered by woodland, start mowing the sections of the field furthest from the woods and mow towards the woods. The third exception is when the field is bordered by a road; In this case start mowing the section next to the road first and work your way across the field.

5) Mower Speed – Mowing in low gear or at slow speeds will allow turtles to react and move out of the field.
6) Unmowed Edge -Leave an unmowed field edge in high turtle use areas until after September 15th. Wood turtle are often in field edges closest to nearby streams.

Herbiciding to Maintain Fields, Meadows, and Shrublands

In some cases herbicide applications may be the best alternative to control woody plants in fields and avoid impacts to turtles. Make sure that you read and follow all state and federal regulations. Use the minimum amount and least toxic herbicide possible for desired outcome. Spot application to individual woody plants is preferred. Most of the herbicides used today are amino acid inhibitors acting on amino acids found only in plants. These prevent the plant from performing metabolically.

Creating Turtle Nesting Habitat

1) Location - Nesting habitat should be within 300 ft of the wetland edge, with a barrier free (e.g. roadless) corridor between the wetland and nesting habitats.
2) Site Factors - It is best to add to existing nesting habitat or to create nesting habitat near known nesting areas; increasing the probability that females will use the nest site immediately. Nesting sites should be on level ground with full southern exposure. The site should get sun, in a 180 degree arc from east to west, throughout most of the day. Total area of the nesting site should be greater than 20 ft in each direction and the site should be above the spring/summer flood plain. The site may need to be larger to get sun exposure throughout the day, depending on the proximity and height of adjacent forested areas. Larger nesting areas or multiple small ones will likely dilute nest predation. To minimize predation and human related mortality and collection; all nesting sites should be as isolated to the extent possible from housing developments, and human activity areas such as ATV/motorcycle trails, playgrounds, picnic areas, walking paths and other human recreational activities.
3) Substrate - The original substrate should consist of well drained soil, sand or gravel. If soil is brought to the site it should be washed sand or gravel. Washed

substrate will minimize translocation of weeds or invasive plant species and impede rapid growth of vegetation. Ground vegetation should be sparse and include native sedges, grasses, and a few low growing shrubs (less than 2%-5% cover of the site). Shrubs will provide cover for the gravid females and hatchlings once they emerge from the nest

4) Procedure
    a. Step 1 –Where necessary forest cover and tall vegetation should be removed. In most cases the surface material will need to be disturbed through scarification. Removal of the surface material, to expose the underlying strata, may also be necessary if the area is infested with invasive and/or weedy species. In some cases the deposition of sandy soil on top of existing vegetation is all that is necessary.
    b. Step 2 – If the exposed native mineral soil is not acceptable, a fine sand (<5% clay and <25% gravel) should be deposited over the parent material to a depth of approximately 12 inches. A permeable tarp may be placed under the sand to reduce the reoccurance of remaining vegetation. Sand cover up to 10-12 in depth may also be used to retard growth of some existing unwanted vegetation.
    c. Step 3 – If needed, native, non-spreading bunch grasses (see the list of appropriate species in #5 below) should be sparsely planted; at approximately a 50 ft spacing throughout the site. Planting should not occur during dry months.
5) Maintenance - Maintenance should not be required frequently. It is recommended that the site is inspected every two years for maintenance issues. If encrusting mosses or other exotic weeds encompass >25% of the intended nesting area, those areas should be raked and accretions should be removed. Herbaceous and woody species should never occupy > 50% of the area. In addition, shrubs should be no taller than 24" in height. If this occurs most of these materials should be removed or trimmed. The removal areas should then be raked and lightly tilled. Additional vegetation plantings may be necessary.

Restoring Stream Buffers

Planting alder (Alnus spp.), dogwoods (Cornus spp), arrowwood (Viburnum spp.) along with grasses and forbs in agriculture fields with little to no stream buffers will provide excellent food (in the form of green leaves, earthworms, fruit, fungi, insects, and carrion) and cover for wood turtles and will help to improve the stream's water quality.

For more guidance on planting stream buffers, please read:
Planting Riparian Buffers in the Connecticut River Watershed
http://www.crjc.org/buffers/Planting%20Riparian%20Buffers.pdf

Recommended Silvicultural Treatments

To avoid wood turtle mortality, avoid harvesting during their active season (May 15 – September 15) and especially avoid using potential nesting areas for log landings during this same time period.

Given their need for dense shrub thicket for food and cover, cutting strips or large groups near slow moving rivers or streams, and regenerating over mature alders would presumably benefit wood turtles.

Sources:

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