

Vulnerable Wood Turtle (*Glyptemys insculpta*) Special Management Practices

Introduction

The Wood Turtle (*Glyptemys insculpta*) is a long-lived, medium-sized semi-aquatic turtle that requires aquatic and terrestrial habitats. Wood Turtles are found in and around riverine habitat within forested and agricultural landscapes throughout Nova Scotia. Rivers and streams are important for foraging, mating and overwintering; and during the late spring and summer riparian and upland habitats are required for basking, nesting, and foraging.

Wood turtles are considered a "species at risk" throughout their range. They are listed nationally as "threatened" (COSEWIC 2007), and provincially as "vulnerable" (2000) because of their susceptibility to human activities and land use practices. Maintaining forested habitat in association with riverine habitat is essential for the conservation of Wood Turtles. Wood Turtles are frequently associated with mixed forests that have a well developed shrub canopy and open areas. The impacts of timber harvesting are recognized as having significantly fewer lasting effects as compared to other permanent changes in land use, such as residential and commercial development. The greatest concern during forest harvest and silviculture operations is turtles being injured or killed by mechanized logging equipment. Additional threats to this species include agricultural activities near stream and river habitat that kills adult turtles and sometimes results in loss of natural nesting habitat. Locating artificial man-made nesting habitats such as sandpits near waterways is also a serious threat to populations. Artificial nesting sites often constitute 'ecological traps' conducive to nest predators and human disturbance, thereby reducing recruitment into the population of breeding adults. However, certain precautions can be taken when managing forest and agriculture land in order to maintain the long-term viability of Wood Turtle populations.

Special management practices for wood turtles should address their general vulnerability to land use during their active period while maintaining habitats required for critical life functions such as overwintering, basking, nesting, and foraging. The following recommendations are based on research completed in the St. Mary's River watershed, and selected references.

Special Management Practices

1) General management recommendations on forested lands:

- a) Adjust the timing and location of motorized vehicle use for forest management activities to when Wood Turtles are inactive or less likely to be occupying terrestrial habitat (Nov – March).
- i) No motorized vehicle use may occur within 100 m of either side of a perennial watercourse in known wood turtle areas (as identified by DNR) in April, May and October.

ii) No motorized vehicle use may occur within 150 m of either side of a perennial watercourse in known wood turtle areas (as identified by DNR) from June to September.

iii) Regular motor vehicle use may occur within 20 m of either side of a perennial watercourse in known wood turtle habitat (as identified by DNR) from November through March. Follow existing *Wildlife Habitat and Watercourse Protection Regulations*

b) Use temporary bridge crossings for perennial streams to avoid altering stream bank, creating erosion and sedimentation, damaging stream bed, and impacting overwintering turtles.

c) Forest management roads and landings should not be constructed parallel to watercourses within 200 m of watercourses where wood turtles occur.

2) General management recommendations on agricultural lands:

a) Time your work through the seasons of the year to reduce the probability of accidentally harming wood turtles or their habitat.

b) Leave adequate, permanent buffers of vegetation around important wood turtle habitat. If necessary, plant an appropriate mixture of shrubs and trees to create a minimum 30 m wide buffer.

c) Do not disturb turtles during the nesting season (late May - early July).

d) Raise the blades of hay mowers a minimum of 10 cm off the ground to help avoid injuring or mutilating wood turtles.

e) Fence all areas used by wood turtles and restrict livestock access in these areas.

f) Create alternate locations where livestock have access to water. By pumping water to designated troughs you will reduce the number of potentially harmful interactions between wood turtles and livestock.

3) General management recommendations around quarries:

a) Leave adequate, permanent buffers of vegetation around important wood turtle habitat. If necessary, plant an appropriate mixture of shrubs and trees to create a minimum 30 m wide buffer.

b) Road access to the quarry pit should not parallel the watercourse but should rather be oriented as far back from the watercourse and to the inland side of the quarry pit as possible.

- c) A barrier fence with narrow mesh small enough to not permit access by wood turtle adults should be installed on the top edge of the quarry pit and oriented to direct wood turtles away from the exposed sand.

4) Specific management practices:

- a) **Overwintering.** Wood turtles will spend approximately 6 months of each year (Oct – Apr) in pools, where there is submerged structure and clear running water. Wood turtles will overwinter communally and show site fidelity; therefore suitable overwintering locations are very important at a population level.

- i) Follow existing *Wildlife Habitat and Watercourse Protection Regulations* to prevent siltation into watercourses where wood turtles are known to overwinter.

- ii) Plan winter temporary stream crossings in advance to avoid pools, submerged logs and limbs where wood turtles are known to overwinter.

- iii) Temporary stream crossing approaches should be brushed well to avoid breaking down the stream bank, causing erosion and sedimentation.

- iv) No harvesting should occur within a special management zone for 20 m up and down stream from an identified overwintering site.

- b) **Basking.** After emerging from their overwintering sites in early April, wood turtles will spend April and May basking along the banks of rivers, streams and ephemeral ponds close to perennial streams.

- i) Follow the general management recommendations for machine exclusion for this time of year.

- c) **Nesting.** Wood turtles nest in sand and gravel beaches or bars found along watercourses, shoulders of highways and woods roads, and landings from late May to early July.

- i) Between April and October, temporary or permanent bridges should not be placed within 100 m upstream or downstream of identified nesting sites, or potential nesting sites with the following characteristics:

- sand and/or gravel beaches or bars $\geq 25 \text{ m}^2$ in area
 - little or no vegetation on the sand and gravel beaches or bars
 - south exposure
 - 0.5 m above mid summer water levels

- ii) No forest management activities (mechanical or manual) to take place within 100 m of an identified nesting beach between 15 May and 15 July.

iii) Forest roads and landings should not be constructed within 100 m of watercourses where wood turtles reside.

d) **Foraging and general movements:** Wood turtles can make large overland movements when foraging, and when traveling to and from nesting areas, thereby making them vulnerable to motor vehicles and some land use practices.

i) Avoid traveling through and protect wet areas with springs, seepages, vernal pools and ephemeral streams.

ii) Leave brush piles for cover in cut overs, and silvicultural areas.

iii) Promote selection harvests, and practices that leave forest openings.

References

Tingley, R., T. B. Herman, M. D. Pulsifer, D. G. McCurdy, and J. P. Stephens (2010). Intra-specific niche partitioning obscures the importance of fine-scale habitat data in species distribution models. *Biodiversity Conservation* 19:2455–2467

Tingley, R., D. G. McCurdy, M. D. Pulsifer and T. B. Herman. (2009). Spatio-temporal differences in the use of agricultural fields by male and female wood turtles (*Glyptemys insculpta*) inhabiting an agri-forestry matrix. *Herpetological Conservation and Biology* 4(2):185-190

MacGregor, M. K. and M. F. Elderkin (2003) Protecting and Conserving Wood Turtles: A Stewardship Plan for Nova Scotia. Nova Scotia Department of Natural Resources. 23 pp.