

**Final Report to
NS Department of Natural Resources
Species at Risk Conservation Fund**

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15 August 2010

Project Title: Conservation Genetics of the wood turtle (*Glyptemys insculpta*)

Background

The wood turtle is a vulnerable species experiencing a steady decline throughout its range. The species is listed as threatened by the Committee on the Status of Endangered Wildlife in Canada and as vulnerable under the Nova Scotia Endangered Species Act and the International Union for Conservation of Nature (IUCN). Provincially, wood turtles face numerous threats that contribute to observed population declines.

Adams (1995) reported the species to occur in 18 watersheds in Nova Scotia. While MacGregor and Elderkin (2003) report its occurrence in 31 watersheds, they note that some of these reports are likely to be released captive turtles. The largest known population in Nova Scotia, and perhaps the largest population in the species range, occurs in the St Mary's River system (TB Herman pers comm). A second apparently large population exists in the Musquodoboit River system, although there are not yet sufficient data to accurately estimate its size. Other populations appear to be smaller and all are discontinuous.

Planning the conservation and management of a species requires knowledge of not only distribution, demographics, and life history, but also of the genetic structure of individual populations and the genetic relationship among populations. This study examines the population genetics of wood turtles in Nova Scotia at several spatial scales and provides information on population genetic structure of wood turtles in Nova Scotia.

Project goal and objectives

The goal of this project was to examine the genetic structure of Wood Turtle populations in Nova Scotia thereby providing a context for recovery decisions. The intent was to sample six populations, or sub-populations, in Nova Scotia, genotype individuals at nine microsatellite loci, and analyze these data to examine the genetic structure with, and the genetic relationship among, these populations

Outline of the work completed

We have sampled five populations/subpopulations: three branches of the St Mary's River, Little River in the Musquodoboit Valley, and Annapolis River near Aylesford. We had hoped to sample turtles from Deny's River as well but logistical problems precluded this. The samples we have should certainly give us a sufficient measure of within and among population variation to meet the initial goal of the project. Analysis is ongoing and specific results will not be reported here.

Results

Once analysis is completed the results will be shared with the interim Nova Scotia Wood Turtle Recovery Team and, at DNR's discretion, we can submit a supplemental report to DNR with results. Results will be included in a MSc thesis at Acadia University and will be considered for publication in a peer reviewed journal. The MSc thesis and any resulting publications will be available at www.speciesatrisk.ca. Data collected during this project will be available through the password protected portal at www.speciesatrisk.ca.

Achievements and recommendations for follow-up

Financial support from the Nova Scotia Species at Risk Conservation Fund, along with financial support from the Elizabeth Wakefield Henderson Charitable Foundation, Acadia University, and the Friends of Keji Cooperating Association, has allowed us to undertake the first genetic assessment of wood turtle populations in Nova Scotia. This will provide an assessment of the current and historical gene flow among the subsections of the St Mary's River population and a measure of the historical relationship among the populations sampled. While this is a good start and will provide a picture of the overall genetic variation in these populations a finer grain picture of the structure of populations across the region will require sampling and analysis of more populations.

Personal Communication

Tom Herman. Acadia University

Literature Cited

- Adams, J.D. 1995. An evaluation of wood turtle (*Clemmys insculpta* LeConte) distribution in Nova Scotia through public surveys. B.Sc. Thesis, Acadia University, Nova Scotia. 48 pp.
- MacGregor, M., and Elderkin, M. 2003. Protecting wood turtles: a stewardship plan for Nova Scotia. Wildlife Division, Nova Scotia Department of Natural Resources. Kentville, Nova Scotia.