Michigan Turtles with Recommendations for Conservation and Recreational Use

Christian M. LeSage

Michigan Department of Natural Resources, Fisheries Division, P.O. Box 30446, Lansing, Michigan 48909

Introduction

Turtles evolved from amphibians during the Pennsylvanian Period about 320 million years ago. According to fossil records dating back to the Triassic period, turtles have remained virtually unchanged in appearance during the last 200 million years (Ernst et al. 1994). Some traits that allowed turtles to survive throughout time are now considered to predispose them to endangerment (Lovich 1995). Turtles have delayed maturity with low and variable annual reproductive success that makes them highly susceptible to increased adult mortality (Brooks et al. 1991; Congdon et al. 1993, 1994). As human populations increase and wild habitat decreases, populations of reptiles and amphibians are seriously declining throughout the world (Schlaepfer et al. 2005). Most reports of turtle population declines come from researchers who observe a decrease over many years in specific study populations. Because only a few of these discrete populations are studied, it is difficult to quantify declines across the range of any one species or on a continental scale across several species (Reed and Gibbons 2004). Factors contributing to turtle declines include collection of animals from the wild for subsistence or commercial purposes; roadway mortality; habitat alteration, destruction and fragmentation; climate change; disease; effects from nonindigenous species; ultraviolet radiation; and xenobiotic chemicals (Gibbons et al. 2000, Houlahan et al. 2000, Schlaepfer et al. 2005).

Turtles are found in freshwater, marine, and terrestrial habitats and play significant roles as carnivores, herbivores, and scavengers. Worldwide there are 260 living species in 13 families and about 75 genera (Harding 1997). Forty-eight species occur in the United States and Canada, with the highest diversity reported in the southeastern states. Michigan has 10 turtle species (Table 1) represented by four families: Family Chelydridae (common snapping turtle *Chelydra serpentina serpentina*); Family Kinosternidae (common musk turtle *Sternotherus odoratus*); Family Emydidae (Blanding’s turtle *Emydoidea blandingii*, common map turtle *Graptemys geographica*, eastern box turtle *Terrapene carolina*, painted turtle *Chrysemys picta*, red-eared slider *Trachemys scripta elegans*, spotted turtle *Clemmys guttata*, wood turtle *Glyptemys insculpta*); and Family Trionychidae (spiny softshell turtle *Apalone spinifera spinifera*). Of these, nine are native to Michigan, with the red-eared slider introduced from pet releases (Harding 1997).

In spite of their evolutionary persistence, few substantive studies exist on the population biology of turtles. Such studies require considerable time and effort, requiring two decades or longer to follow a single cohort. Fortunately, long-term population studies have been conducted on turtles in Michigan (Congdon et al. 1993) and Ontario, Canada (Galbraith and Brooks 1987; Brooks et al. 1991). Lack of scientific information, especially life-history trait values, has hindered development of conservation programs for these unique animals (Congdon et al. 1993).
This management plan is the initial step for providing additional conservation protection and attention to Michigan turtle species. The primary goal of this management plan is to provide natural resource users and managers, scientists, conservationists, and educators with a conservation strategy for the protection of self-sustaining populations of Michigan turtles, specifically:

1. To protect Michigan’s native turtles from overexploitation.
2. To preserve native turtle populations for future generations.
3. To provide recreational sport harvest of turtles where sustainable and appropriate.
4. To identify knowledge gaps and work with external groups to fill these gaps.
5. To increase public awareness about Michigan’s turtles.