

Species Status Assessment

Class: Reptilia
Family: Emydidae
Scientific Name: *Clemmys guttata*
Common Name: Spotted turtle

Species synopsis:

This small turtle with bright yellow or orange spots occurs in freshwater wetlands and associated upland areas in two separate populations: along the coastal plain of the United States from New England to northern Florida, and in Upper Midwest and Ontario (Ernst and Lovich 2009). In New York, spotted turtle populations occur on Long Island, in the southeastern counties north to Saratoga County, and across the Great Lakes Plain. This semi-aquatic turtle uses a mosaic of wetland and upland habitats during the course of a year.

In the last 75 years, spotted turtle populations have declined across the range, but especially in the Great Lakes region and more recently in the eastern United States (Ernst and Lovich 2009, van Dijk 2011). Declines are due to habitat destruction, invasive species introductions, overexploitation, and vehicular mortality.

I. Status

a. Current and Legal Protected Status

i. **Federal** Not Listed **Candidate?** No

ii. **New York** Special Concern; SGCN

b. Natural Heritage Program Rank

i. **Global** G5

ii. **New York** S3 **Tracked by NYNHP?** No

Other Rank:

IUCN Red List – Endangered
NEPARC – Species of Severe Concern

Species of Northeast Regional Concern (Therres 1999)
NY Natural Heritage Program – Watch List
COSEWIC - Endangered
CITES, Appendix II

Status Discussion:

The spotted turtle is ranked as Critically Imperiled or Vulnerable in most of the states and provinces where it occurs. In the Northeast, only Connecticut and Massachusetts rank it as Secure, though both include it as a SGCN. Spotted turtle has been designated as a species of Regional Conservation Concern in the Northeast due to its unknown population status and taxonomic uncertainty (Therres 1999). In 2004, it was listed as federally endangered in Canada. NEPARC (2010) lists spotted turtle as a species of severe concern because more than 75% of northeastern states list it as SGCN.

The IUCN Red List upgraded spotted turtle to Endangered in 2011 because it has undergone a population decline of more than 50 percent over 3 generations (van Dijk 2011), and it has recently been added to the Appendix II of the Convention on International Trade in Endangered Species (CITES).

II. Abundance and Distribution Trends

a. North America

i. Abundance

X declining ___ increasing ___ stable ___ unknown

ii. Distribution:

X declining ___ increasing ___ stable ___ unknown

Time frame considered: Last 75 years

b. Regional

i. Abundance

X declining ___ increasing ___ stable ___ unknown

ii. Distribution:

X declining ___ increasing ___ stable ___ unknown

Regional Unit Considered: Northeast

Time Frame Considered: Last 75 years

c. Adjacent States and Provinces

CONNECTICUT Not Present ___ No data ___

i. Abundance

X declining ___ increasing ___ stable ___ unknown

ii. Distribution:

X declining ___ increasing ___ stable ___ unknown

Time frame considered: Not Specified

Listing Status: Not Listed (S4) SGCN? Yes

MASSACHUSETTS Not Present ___ No data ___

i. Abundance

___ declining ___ increasing X stable ___ unknown

ii. Distribution:

___ declining ___ increasing X stable ___ unknown

Time frame considered: 629 occurrences since 1980

Listing Status: Special Concern (S3) SGCN? Yes

NEW JERSEY **Not Present** _____ **No data** _____

i. Abundance

 X declining ___ increasing ___ stable ___ unknown

ii. Distribution:

 X declining ___ increasing ___ stable ___ unknown

Time frame considered: Not Specified

Listing Status: _____ Special Concern SGCN? Yes

ONTARIO **Not Present** _____ **No data** _____

i. Abundance

 X declining ___ increasing ___ stable ___ unknown

ii. Distribution:

 X declining ___ increasing ___ stable ___ unknown

Time frame considered: Since 1980

Listing Status: _____ Endangered federally and provincially

PENNSYLVANIA **Not Present** _____ **No data** _____

i. Abundance

 X declining ___ increasing ___ stable ___ unknown

ii. Distribution:

 X declining ___ increasing ___ stable ___ unknown

Time frame considered: Not Specified

Listing Status: _____ Not Listed (S3) SGCN? Yes

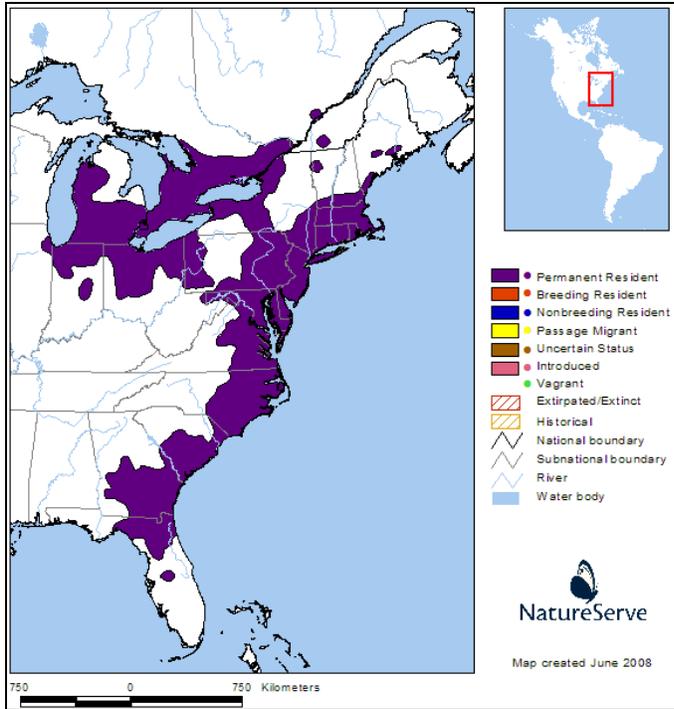


Figure 2: Distribution of spotted turtle in North America (NatureServe 2013)

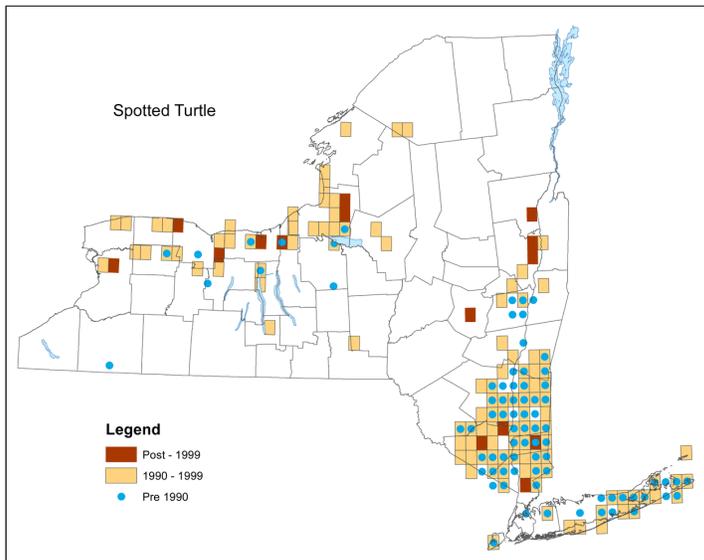


Figure 3: Distribution of spotted turtle in New York (NY Amphibian and Reptile Atlas, NYSDEC)

III. New York Rarity, if known:

| Historic | <u># of Animals</u> | <u># of Locations</u> | <u>% of State</u> |
|----------------------|----------------------------|------------------------------|--------------------------|
| prior to 1970 | _____ | _____ | _____ |
| prior to 1980 | _____ | _____ | _____ |
| prior to 1990 | _____ | _____ | _____ |

Details of historic occurrence:

| Current | <u># of Animals</u> | <u># of Locations</u> | <u>% of State</u> |
|----------------|----------------------------|------------------------------|--------------------------|
| | _____ | _____ | <u>13%</u> |

Details of current occurrence:

The New York Amphibian and Reptile Atlas (1990-1999) documented spotted turtles in 109 survey quads on eastern Long Island, in the lower Hudson Valley, the upper Hudson Valley, the Great Lakes Plain, and the Appalachian Plain. Since 2000, records have been added to the NY Herpetology database in 15 additional survey quads, including one survey quads in Warren County that extended the northern edge of the distribution in the eastern part of the state. Another new record is from Schoharie County.

Gibbs et al. (2007) report that spotted turtles are abundant in some areas east of Lake Ontario in Oswego, Lewis, and Jefferson counties. The absence of spotted turtles from high elevation areas is noted, including the Appalachian Plateau, Catskill Mountains, and Adirondack Mountains.

New York's Contribution to Species North American Range:

| % of NA Range in New York | Classification of New York Range |
|----------------------------------|---|
| <u> </u> 100 (endemic) | <u> X </u> Core |
| <u> </u> 76-99 | <u> </u> Peripheral |
| <u> </u> 51-75 | <u> </u> Disjunct |
| <u> </u> 26-50 | Distance to core population: |
| <u> X </u> 1-25 | _____ |

Milam and Melvin (2001) documented that spotted turtles in Massachusetts spend about two-thirds of the active season in seasonal pools. In a two-year study in Massachusetts, Joyal et al. (2001) found that 74% of time between May and September was spent in uplands. Individuals may aestivate under leaves and forest duff.

In a radio-tracking study in Massachusetts, Fowle (2001) reported an average movement to nest sites of 249m and a maximum of 750m. The maximum distance traveled between wetlands was 1,150m.

V. New York Species Demographics and Life History

- Breeder in New York**
 - Summer Resident**
 - Winter Resident**
 - Anadromous**
- Non-breeder in New York**
 - Summer Resident**
 - Winter Resident**
 - Catadromous**
- Migratory only**
- Unknown**

Species Demographics and Life History Discussion:

Spotted turtles emerge early in the spring, first appearing in late March or early April. They appear to be quite tolerant of cold water and have been observed basking on snow during mid-winter when temperatures are unusually mild (Gibbs et al. 2007). Activity within the wetland is high during early spring when individuals bask in the open. Shallow water offers suitable prey in the form of amphibian egg masses, tadpoles, snails, slugs, worms, crustaceans, and other invertebrates (Hulse et al. 2001). The eggs and larvae of frogs and salamanders that breed in seasonal pools are in important food source for spotted turtles (Fowle 2001).

As wetlands begin to dry in late May and June, spotted turtles are less apparent. Turtles burrow into the muddy substrate of the wetland or move to upland areas and burrow in dry vegetation. Gravid females may move several hundred meters to upland areas to lay their clutch of 2 to 7 eggs (Milam and Melvin 2001, Joyal et al. 2001). A sunny location is chosen for the nest, typically in loamy soils, on a grassy hummock or in sphagnum moss (Gibbs et al. 2007). Incubation takes 7 to 12 weeks. Hatchlings may emerge in August or September, or during the following spring. Sexual maturity is reached in 7 to 13 years in males and 7 to 15 years in females (Ernst and Lovich 2009).

Adults return to a common hibernacula in the fall, typically using the same spot year after year (Litzgus et al. 1999, Haxton and Berrill 1999). Milam and Melvin (2001) reported that the density of spotted turtles at their Massachusetts study site is 0.4 adults/acre. Generation time is estimated at of 25–30 years (Litzgus 2006). Spotted turtles may live 40 years or more (Gibbs et al. 2007) and possibly as long as 65 to 110 years (Litzgus 2006, Ernst and Lovich 2009). The sex ratio in most populations is 1:1 (Ernst and Lovich 2009).

VI. Threats:

Spotted turtles are susceptible to mortality on paved roads and by off-road vehicles, fragmentation of habitat, increases in subsidized nest predators, removal as pets, forestry practices, and destruction of habitat for development and agriculture.

Development and agriculture are significant causes of habitat loss. Spotted turtles are sensitive to pollution (Litzgus and Mousseau 2004) and the effluents resulting from agricultural runoff, including pesticides and fertilizer, can degrade wetlands.

Activities in the immediate vicinity of an occupied wetland may degrade the quality of the habitat. Such activities include thinning of the forest canopy or removal of rocks and coarse woody debris (which provide shelter for prey items). The proximity of human residential areas increases subsidized predators (especially crows, raccoons, coyotes), the disturbance of nesting activity by humans and their pets, and the taking of turtles as pets (Fowle 2001).

Commercial collection for the pet trade is a serious problem (Levell 2000, CITES 2013). Spotted turtles are highly prized in the pet trade, commanding prices as high as \$500 for an adult (MA Division of Fisheries & Wildlife 2005, CITES 2013). Exports of spotted turtles have steadily increased from nearly 350/year in 1999 to about 1000/year by 2010 (LEMIS 2011). Reed and Gibbons (2002) estimated that 60% of spotted turtles in the pet trade were wild-caught.

Roads, railroad tracks, fences, retaining walls, and high curbs can all serve as barriers to terrestrial movements and lead to populations becoming isolated (Fowle 2001).

Are there regulatory mechanisms that protect the species or its habitat in New York?

No Unknown

Yes

In 2006, the State of New York adopted legislation (ECL section 11-0107 sub 2) that gave all native frogs, turtles, snakes, lizards and salamanders legal protection as game species, with very few open to harvest. The legislation also outlaws the sale of any native species of herpetofauna regardless of its origin.

The Freshwater Wetlands Act provides protection for wetlands greater than 12.4 acres in size under Article 24 of the NYS Conservation Law. In 2013, spotted turtle was added to Appendix II of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES).

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

Several studies have recognized the importance of upland habitats surrounding wetlands to spotted turtles and have made recommendations for their preservation (e.g., Perillo 1997, Joyal et al. 2001, Milam and Melvin 2001, Semlitsch and Bodie 2003). Perillo (1997) and Milam and Melvin (2001) recommend buffer widths of 200 meters and 400 meters, respectively, specifically for spotted turtles.

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for uncommon turtles of wetlands, which includes spotted turtle. Conservation actions following IUCN taxonomy are categorized in the table.

Easement acquisition:

Secure habitats critical to species survival by acquisition of conservation easements for wetlands and adjacent uplands.

Habitat management:

Develop and implement mitigation strategies to manage adverse effects of habitat fragmentation.

Conduct a variety of habitat management activities where needed, including management of vegetation succession, management of invasive species, maintenance of hydrological regimes, curtailment of contaminant inputs, and management of human access, in order to preserve wetland suitability for these uncommon turtles of wetlands.

Habitat research:

- ___ Develop standardized habitat survey protocols, and implement survey protocols at all known and potentially suitable sites, to document the character, quality and extent of occupied habitat.

Modify regulation:

- ___ Modify Freshwater Wetlands Act, in order to protect wetlands smaller than 12.4 acres where they support species of conservation concern, and in order to expand the protected upland buffer beyond the 100-foot limit where necessary.
- ___ Adopt into New York's Environmental Conservation Law provisions which designate stinkpot, eastern mud turtle, Blanding's turtle, and spotted turtle as protected small game species.

Other action:

- ___ Develop and implement mitigation measures to manage turtle population losses to egg predators and to vehicular roadkill.
- ___ Enhance law enforcement and public education in order to curtail collection/translocation of turtle specimens.
- ___ Determine significance of specific threats to populations of species in this group, and formulate management options to control significant threats.

Population enhancement:

- ___ Employ restoration techniques for bog turtle, Blanding's turtle and mud turtle at selected sites as needed, including captive breeding, headstarting, nest protection, and repatriation/relocation strategies.

Population monitoring:

- ___ Conduct periodic re-survey of known sites of species occurrence, in order to detect population trends.

Statewide baseline survey:

- ___ Develop standardized population survey protocols, and implement survey protocols at all known and potentially suitable sites, to document the extent of occupied habitat.

| Conservation Actions | |
|-----------------------|---|
| Action Category | Action |
| Land/Water Protection | Site/Area Protection |
| Land/Water Protection | Resource/Habitat Protection |
| Land/Water Management | Site/Area Management |
| Land/Water Management | Habitat and Natural Process Restoration |
| Land/Water Management | Invasive/Problematic Species Control |
| Species Management | Species Recovery |
| Education & Awareness | Awareness & Communications |
| Law/Policy | Legislation |
| Law/Policy | Compliance & Enforcement |

VII. References

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