Bog Turtle

Bog turtle

Photo credits: *Jesse W. Jaycox*

Scientific Name *Glyptemys muhlenbergii* (Schoepff, 1801)

Family Name Emydidae
Box Turtles and Pond Turtles

Did you know?
The bog turtle is one of the smallest turtles in North America. Bog turtles in the northern part of the range are generally less than 100 millimeters (4 inches) in length, while turtles father south reach sizes of up to 115 millimeters (4.5 inches) (USFWS 2001).

Summary

Protection Endangered in New York State, Threatened federally.

This level of state protection means: A native species in imminent danger of extirpation or extinction in New York (includes any species listed as federally Endangered by the United States). It is illegal to take, import, transport, possess, or sell an animal listed as Endangered, or its par

This level of federal protection means: Listed as Threatened in the United States by the US Department of Interior.

Rarity G3, S2

A global rarity rank of G3 means: Either rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some of its locations) in a restricted range (e.g. a physiographic region), or vulnerable to extinction throughout its range because of other factors.
A state rarity rank of S2 means: Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably make it very vulnerable in New York State.

Conservation Status in New York

While more than 20 extant populations are currently known in New York, significant threats to these populations exist. Many of the populations are comprised of few individuals and the habitats that support them are often small in size. While additional bog turtle sites will probably be discovered, some of these may be determined to be part of existing metapopulations and most new sites are expected to have at least some threats.

Short-term Trends

Survey efforts have recently been aimed at marking individual turtles at multiple sites to obtain population data and it is too early to determine short-term trends. The best populations are likely to contain fewer than 100 individuals and most are likely to have far fewer individuals. Twelve populations have between 10 and 92 individuals documented from them and it is probable that an unknown number of additional turtles are also present. Far fewer individuals are known from the remaining 73 populations. Four populations are known to be extirpated and it is likely that many of the populations with records from the 1970s or earlier are extirpated as well.

Conservation and Management

Threats

A spotty distribution and specialized habitat requirements make this species vulnerable to local extirpation. Declines are primarily due to loss, degradation, and fragmentation of habitat. Road mortality, an increase in subsidized predators, natural succession, and the expansion of invasive exotic vegetation are associated with these primary threats. Illegal collecting for the pet trade is also a direct threat to populations.

Conservation Strategies and Management Practices

The control of exotic species and natural succession is warranted at a number of sites. The control of subsidized predators may be desirable if predation of eggs and juveniles is unusually high.

Research Needs

Additional research on population size, intra-habitat use, and inter-habitat movements and migration is needed.

Habitat

In New York, bog turtles occur in open-canopy wet meadows, sedge meadows, and calcareous fens. The known habitat in the Lake Plain region of the state includes large fens that may include various species of sedges, such as slender sedge (*Carex lasiocarpa*), bog buckbean (*Menyanthes trifoliata*), mosses (*Sphagnum* spp.), pitcher plants (*Sarracenia* sp.), scattered trees, and scattered shrubs. In the Hudson River Valley, bog turtle habitats may be isolated from other wetlands or they may exist as part of larger wetland complexes. These wetlands are often fed by groundwater and the vegetation always includes various species of sedges. Other vegetation that is frequently found in southern New York bog turtle sites includes shrubby cinquefoil (*Potentilla fruticosa*),

grass-of-parnassus (*Parnassia glauca*), mosses (*Sphagnum* spp.), horsetail (*Equisetum* sp.), scattered trees such as red maple (*Acer rubrum*), red cedar (*Juniperus virginianus*), and tamarack (*Larix laricina*), and scattered shrubs such as willows (*Salix* spp.), dogwood (*Cornus* spp.), and alder (*Alnus* spp.).

Associated Ecological Communities

Marl Fen
A wetland that occurs on a bed of marl. Marl is a whitish substance that is deposited from water that has a lot of calcium dissolved in it. The whitish substance is calcium carbonate, people used to harvest marl to lime agricultural fields. The marl substrate is always saturated, may be flooded, and has a very high pH, generally greater than 7.5. The main source of water is always groundwater. The plants are often sparse and stunted. Marl fens may occur as small patches within a rich graminoid fen.

Medium Fen
A wetland fed by water from springs and seeps. These waters are slightly acidic (pH values generally range from 4.5 to 6.5) and contain some dissolved minerals. Plant remains in these fens do not decompose rapidly and thus the plants in these fens usually grow on older, undecomposed plant parts of woody material, grasses, and mosses.

Red Maple-hardwood Swamp
A hardwood swamp that occurs in poorly drained depressions, usually on inorganic soils. Red maple is usually the most abundant canopy tree, but it can also be codominant with white, green, or black ash; white or slippery elm; yellow birch; and swamp white oak.

Red Maple-tamarack Peat Swamp
A swamp that occurs on organic soils (peat or muck) in poorly drained depressions. These swamps are often spring fed or enriched by seepage of mineral-rich groundwater resulting in a stable water table and continually saturated soil. The dominant trees are red maple and tamarack. These species usually form an open canopy (50 to 70% cover) with numerous small openings dominated by shrubs or sedges.

Rich Graminoid Fen
A wetland of mostly grasses usually fed by water from highly calcareous springs or seepage. These waters have high concentrations of minerals and high pH values, generally from 6.0 to 7.8. Plant remains do not decompose rapidly and these grasses usually grow on older, undecomposed plant parts.

Rich Shrub Fen
A wetland with many shrubs that is usually fed by water from springs and seeps. These waters have high concentrations of minerals and high pH values, generally from 6.0 to 7.8. Plant remains in these fens do not decompose rapidly and thus the plants in these fens usually grow on older, undecomposed woody plant parts.

Rich Sloping Fen
A small, gently sloping wetland that occurs in a shallow depression on a slope composed of calcareous glacial deposits. Sloping fens are fed by small springs or groundwater seepage. Like other rich fens, their water sources have high concentrations of minerals and high pH values, generally from 6.0 to 7.8. They often have water flowing at the surface in small channels or rivulets.

Sedge Meadow
A wet meadow community that has organic soils (muck or fibrous peat). Soils are permanently saturated and seasonally flooded. The dominant herbs must be members of the sedge family, typically of the genus Carex.

Other Probable Associated Communities

Black spruce-tamarack bog
Dwarf shrub bog

Associated Species

Spotted Turtle (*Clemmys guttata*)
Wood Turtle (*Clemmys insculpta*)

Identification Comments

Identifying Characteristics

This is a small turtle with adult carapace (upper shell) lengths ranging from 3 to 4.5 inches in length. The carapace is light brown to black, may have a faint yellowish or reddish pattern visible on the large scutes, and is strongly sculptured with growth lines visible, except in very old adults where the growth lines may be worn smooth. An inconspicuous keel is also present along the dorsal midline of the carapace. The plastron (lower shell) is mainly dark brown to black and may also have large yellowish or reddish blotches present. The head is black with two large orange or yellow blotches above and behind the tympanum (ear) on each side of the head.

Characteristics Most Useful for Identification

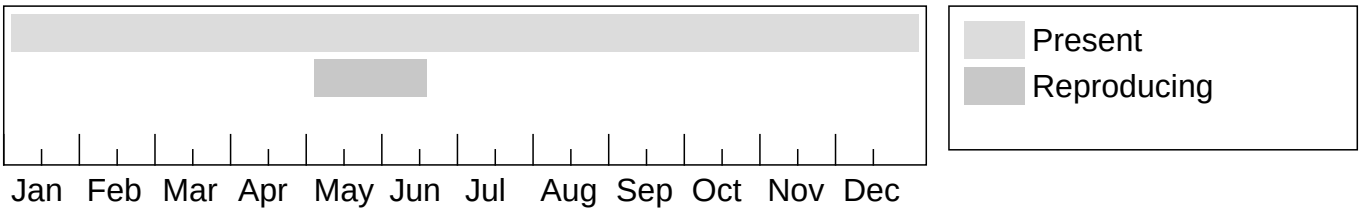
The small size and normally orange (sometimes yellow) head blotches are split into two parts and are characteristic of the species.

Diet

The diet of the bog turtle has been reported to include insects, plants, frogs, and carrion (Bury 1979). Fecal samples from Massachusetts have contained spiders (Aracnida), beetles (Coleoptera), millipedes (Diplopoda), flies (Diptera), snails (Gastropoda), ants (Hymenoptera), moths (Lepidoptera), dragonflies (Odonata), caddisflies (Trichoptera), and plant fragments (Klemens 1993). Slugs (Arion subflavus) have been reported as food items in southeastern New York, while slugs and crayfish have been reported as food items in North Carolina (USFWS 2001).

The Best Time to See

Bog turtles are diurnal and are normally active during the early morning to mid-day hours, often in the direct sun. This species hibernates communally and shows site-fidelity to hibernacula.



The time of year you would expect to find Bog Turtle in New York.

Similar Species

Spotted Turtle(Clemmys guttata): Some individual spotted turtles may lack the characteristic yellow spots on their shells. This is rarely the case, however, and this species can always be distinguished from bog turtles by the many yellow spots that are present on their heads and necks (Conant and Collins 1998).

Taxonomy

Kingdom Animalia
- **Phylum** Craniata
  - **Class** Turtles (Chelonia)
    - **Order** Turtles (Cryptodeira)
      - **Family** Emydidae (Box Turtles and Pond Turtles)

Synonyms

Clemmys muhlenbergii ((Schoepff, 1801))

Additional Resources

Links

Google Images
http://images.google.com/images?q=CLEMMYS+MUHLENBERGII
New York State Department of Environmental Conservation
http://www.dec.ny.gov/animals/7164.html
NatureServe Explorer
http://natureserve.org/explorer/servlet/NatureServe?searchName=CLEMMYS+MUHLENBERGII

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