

SPECIES PROFILE

Eastern Box Turtle

Terrapene carolina carolina

Federal Listing: Not listed

State Listing: Not listed

Global Rank: G5

State Rank: SNA (Not Applicable)

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ELEMENT 1: DISTRIBUTION AND HABITAT

1.1 Habitat Description

Eastern box turtles are terrestrial generalists that use a variety of habitats including mesic forests, xeric uplands, open woodlands, pastures, old fields, thickets, and powerline clearings (Klemens 1993, Ernst et al. 1994, DeGraaf and Yamasaki 2001, Mitchell 2003). Although considered a terrestrial turtle, box turtles may make extensive use of a variety of wetlands, shallow streams, or muddy seepages (Klemens 1993, Quinlan et al. 2004, Marchand et al. 2004) as relief from high temperatures, concealment from predators (Dodd 2001), and for additional foraging opportunities (Marchand et al. 2004). A diversity of habitats in close proximity is apparently favored (Madden 1975, Klemens 1993), and box turtles may adjust habitat preference depending on season and temperature (Madden 1975, Dodd 2001, Marchand 2004).

During periods of inactivity, box turtles may bury in litter or rest in brush piles or briar patches (Stickel 1950). Openings in the forest canopy are important for basking individuals (Stickel 1950), and well-drained open canopy areas are required for nesting (Ernst et al. 1994). As temperatures drop in the fall, box turtles dig progressively deeper into soil where they spend the winter. Portions of the carapace are sometimes visible even in northern climates (Dodd 2001).

1.2 Justification

The eastern box turtle is a species of concern in the northeast (Therres 1999). States reporting declines of box turtles include Connecticut, Florida, Illinois, Indiana, Iowa, Maryland, Massachusetts, Missouri, New Jersey, New York, Ohio, Oklahoma, Tennessee, Virginia, West Virginia, and Wisconsin (Stickel 1978, Williams and Parker 1987, Lieberman 1994). Massachusetts and Connecticut consider the eastern box turtle a species of special concern, and in Maine eastern box turtles are listed as endangered (Hunter et al. 1999).

Box turtles are a long-lived species with delayed ages of sexual maturity, relatively low fecundity, and dependence on high adult survival. Therefore, they may be extremely vulnerable to increased mortality associated with rapid development in New England. The current and historic status of box turtles in New Hampshire is not known and needs further consideration.

1.3 Protection and Regulatory Status

- NHFG Rule FIS 803.02. Eastern box turtles shall not be imported to New Hampshire.
- NHFG Rule FIS 804.02. Eastern box turtles shall not be possessed in New Hampshire.
- NHFG Rule FIS 811.01. No person shall sell eastern box turtles in New Hampshire.
- Fill and Dredge in Wetlands; NHDES (RSA 482-A, Wt 302.04): For all affected major (more than 20,000 sq ft) and minor (3,000 to 20,000 sq ft) wetland, applicants must consider threats to rare species. Because box turtles often are associated with terrestrial habitats, protection of box turtles from this regulation is likely limited.

1.4 Population and Habitat Distribution

In New England the box turtle's range includes southeastern Maine, southeastern New Hampshire, eastern Massachusetts including Cape Cod and the islands, the Connecticut River region, and much of Rhode Island and Connecticut (Klemens 1993, DeGraaf and Yamasaki 2001). Box turtles do not occur in Vermont (Hunter et al. 1999). In Maine, box turtles have been reported in at least 13 towns (Hunter et al. 1999). However, reports distant from south-coastal Maine were likely released pets. Records in Maine consist largely of single individuals and do not attest to a population (P. deMaynadier, Maine Department of Inland Fisheries and Wildlife, personal communication).

In New Hampshire, the distribution and abundance of box turtles is not well known. A specimen was collected in Pelham, Rockingham County historically (Huse 1901) and submitted to the Manchester Institute of Arts and Sciences, but has apparently since been lost (Natural Heritage Rare Species Database 2004). Specimens from Lee were also reported (Huse 1901), suggesting that box turtles occurred in southern New Hampshire historically. Recently, remains of a box turtle were found at a pre-colonial excavation site from Lake Massabesic, New Hampshire (Largy 2003). This report may suggest that a native population of box turtles existed in New Hampshire historically.

Use and trade of box turtles by Native Americans has complicated our understanding of the historic distribution of the species (Adler 1968). Box turtles were occasionally consumed (Dodd 2001), were commonly used as ceremonial objects (Klemens 1993, Dodd 2001), and were transported, often north of the species' current range (Bleakney 1958, Adler 1968). Therefore, it is possible that box turtles were traded to New Hampshire from other locations where box turtles are currently more abundant (e.g., southern New England). Box turtle shells recovered in Ontario, north of the current range, have been considered not native (Bleakney 1958). However, Adler (1970) reported that Native Americans (primarily Iroquois) may have been responsible for the elimination of box turtles in western New York and possibly in southern Ontario.

The NHFG Nongame and Endangered Species Program has received reports of box turtles from 12

towns between 1992 and 2004 (RAARP). Most of these reports have not been verified, and 1 of these town observations (Merrimack) was later confirmed as an Ornate box turtle (*Terrapene ornata*). A report from Amherst was confirmed to be of released individuals. Reports of box turtles from central and northern New Hampshire (Wentworth Location, Eaton, Moultonborough) were most likely the result of released pets. Box turtles were extremely popular in the pet industry (Ernst et al. 1994, Lieberman 1994), and in New Hampshire, it was not illegal to possess Eastern box turtles until 1996.

In 1985, a box turtle was reported from Hudson, adjacent to the historic record in Pelham. During a survey for NHNHB, a recently deceased box turtle was discovered. Habitat surrounding the turtle was described as a dry oak forest with a power line right-of-way and a graminoid marsh (Korpi 1985). A follow-up survey has not been done. Taylor (1993) illustrates 2 additional locations in southeastern New Hampshire on the edge of Rockingham and Strafford Counties, and Dodd (2001) depicts 2 locations on the southern border of Maine and New Hampshire.

All known reports of box turtles in New Hampshire were of 1 individual, and there is no known evidence of breeding. Based on these reports and the distribution of eastern box turtles in Massachusetts and Maine, any box turtle populations that may occur in New Hampshire are likely to occur in the south central to southeastern portion of the State.

1.5 Town Distribution Map

No known populations.

1.6 Habitat Map

N/A

1.7 Sources of Information

Sources of information include the RAARP database, NHNHB Rare Species database, Massachusetts Natural Heritage Element Occurrence Information, and Maine Reptile and Amphibian Atlas (Hunter et al. 1999).

1.8 Extent and Quality of Data

The historic and current distribution of box turtles in

New Hampshire is not well known. Many observations made by RAARP volunteers have not included photographs and cannot be verified.

1.9 Distribution Research

NHFG will continue to evaluate reports received from the RAARP and will alert volunteers to changes in species status. Sightings should be followed by on-site surveys, which should describe habitat condition and perhaps historic suitability. When warranted, dogs may be used to locate turtles (Schwartz and Schwartz 1991). Because individual box turtles can be difficult to locate, searching potential habitat without a lead would likely not be effective.

NHFG should search archaeological excavation reports, communicate with groups conducting archaeological excavations, and compile verified historic occurrences of eastern box turtles. Reports describing archaeological excavations must be submitted to the New Hampshire Division of Historical Resources in compliance with federal regulations (Section 106, 1966 National Historic Preservation Act).

ELEMENT 3: SPECIES AND HABITAT THREAT ASSESSMENT

Threats to eastern box turtles have been assessed in other areas of the Northeast. The most significant threats include habitat loss and fragmentation, roads as barriers and agents of mortality, and commercial and casual collection. In New Hampshire, cold winters might have limited the species potential and historic distribution. Currently, the greatest threat to eastern box turtles in New Hampshire is a lack of knowledge regarding the species' presence. The popularity of eastern box turtles as pets and the resulting release of those pets to the wild have increased the difficulty of assessing the historic and current range of the species in New Hampshire.

ELEMENT 5: REFERENCES

5.1 Literature

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5.2 Data Sources

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