# EASTERN BOX TURTLE INFORMATION HANDOUT

If you find a box turtle during Site Work, please place it out of extreme temperatures (hot or cold) preferably in a box/bucket with leaves and contact Bob Gray [redacted]. MA Fish & Wildlife require protection of these animals during the Project. Finding animals will not stop work but we are required to avoid injuring or killing turtles to the extent we can in the project area.

Box turtles are 4 to 6 inches long and have orange/yellow and black coloration in this area. Males have red eyes, females generally have more brown eyes. The turtles will not bite you unless you poke them in the mouth.

Box Turtles are common in Eastern Massachusetts and have been documented on and near this Site. You may find one or more turtles during the warmer months on the site. Any animals found in the work area should be protected. We will mark the animal and place it outside the work zone. For more information, please refer to the NHESP Eastern Box Turtle fact sheet attached.

IF YOU FIND A TURTLE (dead or alive) call Bob Gray at (508) 274-2218 [redacted]

Natural Heritage
& Endangered Species
Program

*Massachusetts Division of Fisheries & Wildlife*
*Route 135, Westborough, MA 01581*
*tel: (508) 389-6360; fax: (508) 389-7891*
*www.nhesp.org*

# Eastern Box Turtle

*Terrapene carolina*

State Status: **Species of Special Concern**
Federal Status: None

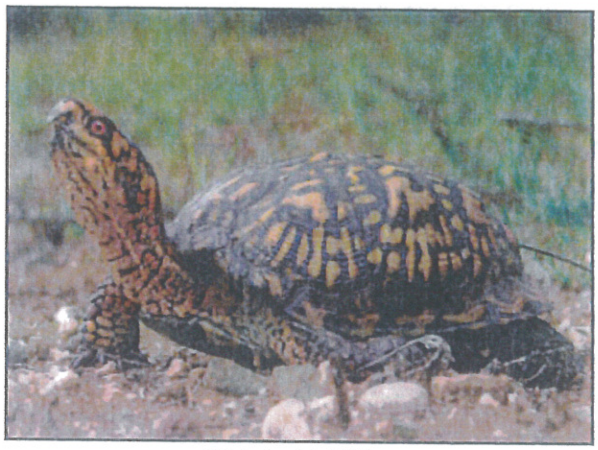


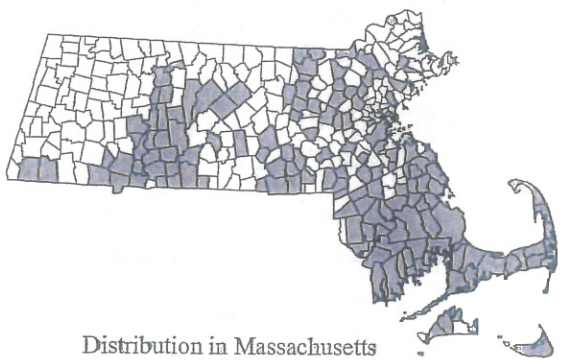
Photo by Liz Willey

**DESCRIPTION:** The Eastern Box Turtle is a small, terrestrial turtle ranging from 11.4–16.5 cm (4.5–6.6 in.) in length. It is so named because a hinge on the lower shell (plastron) allows it to enclose head, legs, and tail completely within the upper (carapace) and lower shells. The adult box turtle has an oval, high-domed shell with variable coloration and markings. The carapace is usually dark brown or black with numerous irregular yellow, orange, or reddish blotches. The plastron typically has a light and dark variable pattern, but some may be completely tan, brown, or black. The head, neck, and legs also vary in color and markings, but are generally dark with orange or yellow mottling. The Eastern Box Turtle has a short tail and an upper jaw ending in a down-turned beak. The male box turtle almost always has red eyes, and females have yellowish-brown or some times dark red eyes. Males have a moderately concave plastron (female's are flat), the claws on the hind legs are longer and the tail is both longer and thicker than the females. Hatchlings have brownish-gray carapace with a yellow spot on each scute (scale or plate), and a distinct light colored mid-dorsal keel (ridge). The plastron is yellow with a black central blotch, and the hinge is poorly developed.

**SIMILAR SPECIES:** The Blanding's Turtle (*Emydoidea blandingii*) may be confused with the Eastern Box Turtle. Often referred to as the "semi-box turtle," the Blanding's Turtle has a hinged plastron enabling the turtle to pull into its shell but with less closure than in the Eastern Box Turtle. Both may have yellow markings on the carapace; however, the marking on a Blanding's Turtle are spots or flecks rather than blotches. An adult Blanding's Turtle is larger than the box turtle (15-23 cm; 6-9 in. in shell length). While both will be found nesting in similar habitat, the Blanding's Turtle is essentially aquatic whereas the Eastern Box Turtle is terrestrial. Eastern Box Turtle hatchlings could be confused with Spotted Turtle hatchlings, because both have spots on each scute. However, the Spotted Turtle lacks a mid-dorsal keel.

**RANGE:** The range of the Eastern Box Turtle is from southeastern Maine; south to northern Florida; and west to Michigan, Illinois, and Tennessee. Although Eastern Box Turtles occur in many towns in Massachusetts, they are more heavily concentrated in the southeastern section of the state.

**HABITAT IN MASSACHUSETTS:** The Eastern Box Turtle is a terrestrial turtle, inhabiting many types of habitats. It is found in both dry and moist woodlands, brushy fields, thickets, marsh edges, bogs, swales, fens, stream banks, and well-drained bottomland.



Distribution in Massachusetts
1980 - 2006
Based on records in Natural Heritage Database

**LIFE CYCLE & BEHAVIOR:** The Eastern Box Turtle hibernates in the northern parts of its range from late October or November until mid-March or April depending on the weather. Box Turtles overwinter in upland forest, a few inches under the soil surface, typically covered by leaf litter or woody debris. As soil temperatures drop, the turtles burrow into soft ground. Overwintering is usually not communal, although several may overwinter within close proximity of one another. Some individuals may emerge prematurely during warm spells in winter and early spring. When this occurs they may perish from exposure if there's a sudden cold snap. During the spring, Box Turtles start to forage and mate in the forest and fields.

In summer, adult Box Turtles are most active in the morning and evening, particularly after a rainfall. To avoid the heat of the day, they often seek shelter under rotting logs or masses of decaying leaves, in mammal burrows, or in mud. They often scoop out a "form" (a small domelike space) in leaf litter, grasses, ferns, or mosses where they spend the night. These forms may be used on more than one occasion over a period of weeks. Though known as "land turtles", in hottest weather they frequently enter shaded shallow pools and puddles and remain there for periods varying from a few hours to a few days. In the cooler temperatures of spring and fall, Box Turtles forage at any daylight hour.

The Eastern Box Turtle is omnivorous, feeding on animal matter such as: slugs, insects, earthworms, snails, and even carrion. Box Turtles also have a fondness for mushrooms, berries, fruits, leafy vegetables, roots, leaves, and seeds.

Females reach sexual maturity at approximately 13 years of age. Mating is opportunistic and may take place anytime between April and October. Courtship begins with the male circling, biting, and shoving the female. After which the premounting and copulatory phases take place. Females can store sperm and lay fertile eggs up to four years after mating.

Females nest in June or early July and can travel great distances to find appropriate nesting habitat. They may travel up to approximately 1600 m (1 mile), many crossing roads during their journey. Nesting areas may be in early successional fields, meadows, utility right of ways, woodland openings, roadsides, cultivated gardens, residential lawns, mulch piles, beach dunes, and abandoned gravel pits. Females sometimes exhibit nest site fidelity, laying eggs in close proximity to the previous years' nest. Females typically start nesting in the late afternoon-early evening and continue for up to five hours.

Typically four or five white, elliptical eggs are deposited at intervals of one to six minutes, with the incubation period depending on soil temperature. Hatchlings emerge approximately 87–89 days after laying, usually in September. Juvenile Box Turtles are rarely seen, which is true of other turtle species as well.

During the first four or five years of life, box turtles may grow at a rate of half an inch to about three-quarters of an inch a year. The average life expectancy of a Box Turtle is 40 to 50 years, but it may live to be about 100.

**ACTIVE PERIOD**

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

**THREATS:** There are several reasons the Eastern Box Turtle is threatened in Massachusetts: habitat destruction resulting from residential and industrial development; road mortality; collection by individuals for pets; mowing of fields and early successional habitat during the active season; unnaturally inflated rates of predation in suburban and urban areas; disturbance of nest sites by ATVs; and genetic degradation due to the release of non-native (pet store) turtles. The release of non-native species could also transmit disease, which may become an issue in Massachusetts, but is not currently a problem.

**MANAGEMENT RECOMMENDATIONS:**
Using NHESP records, Eastern Box Turtle habitat needs to be assessed and prioritized for protection based on the extent, quality, and juxtaposition of habitats and their predicted ability to support self-sustaining populations of Box Turtles. Other considerations should include the size and lack of fragmentation of habitat and proximity and connectivity to other relatively unfragmented habitats, especially within existing protected open space.

Given limited conservation funds, alternatives to outright purchase of conservation land is an important component to the conservation strategy. These can include Conservation Restrictions (CRs) and Agricultural Preservation Restrictions (APRs).

Habitat management and restoration guidelines should be developed and implemented in order to create and/or maintain consistent access to nesting habitat at key sites. This is most practical on state-owned conservation lands (i.e. DFW, DCR). However, educational materials should be made available to guide private land-owners on the best management practices for Box Turtle habitat.

Alternative wildlife corridor structures should be considered at strategic sites on existing roads. In particular, appropriate wildlife corridor structures should be considered for bridge and culvert upgrade and road-widening projects within Box Turtle habitat. Efforts should be made to inform local regulatory agencies of key locations where these measures would be most effective for turtle conservation.

Educational materials need to be developed and distributed to the public in reference to the detrimental effects of keeping our native Box Turtles as pets (an illegal activity that slows reproduction in the population), releasing pet store turtles (which could spread disease), leaving cats and dogs outdoors unattended (particularly during the nesting season), mowing of fields and shrubby areas, feeding suburban wildlife (which increases numbers of natural predators to turtles), and driving ATVs in nesting areas from June-October. People should be encouraged, when safe to do so, to help Box Turtles cross roads (always in the direction the animal was heading); however, turtles should never be transported to "better" locations. They will naturally want to return to their original location and likely need to traverse roads to do so.

Increased law enforcement is needed to protect our wild populations, particularly during the nesting season when poaching is most frequent and ATV use is common and most damaging.

Forestry Conservation Management Practices should be applied on state and private lands to avoid direct turtle mortality. Motorized vehicle access to timber harvesting sites in Box Turtle habitat is restricted to the times when the Box Turtle is inactive during the winter, preferably when the ground is frozen. Motorized vehicles should not be used for soil scarification.

Finally, a statewide monitoring program is needed to track long-term population trends in Eastern Box Turtles.

**REFERENCES:**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Ernst, C.H., Lovich J.E., and R.W. Barbour. 1994. Turtles of the United States and Canada. Smithsonian Institution Press, Washington and London.

Hunter, M.L., Jr., Albright, J., and J.E. Arbuckle. 1992. The Amphibians and Reptiles of Maine. Bulletin 838, The Maine Amphibian and Reptile Atlas Project. Orono, Maine: University of Maine, Maine Agricultural Experiment Station.

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Lazell, James. 1969. "Nantucket Herpetology," *Massachusetts Audubon* 54 (2): 32-34.

Shiffer, Clark N. 1990. "Turtle In A Box," Pennsylvania Angler, pp. 23-24.

Simmons, T. 1988. "All Outdoors," Vineyard Gazette.

Tyning, T.F. 1990. A Guide to Amphibians and Reptiles. Boston: Little, Brown and Company.

Willey, L. 2006. Personal communication. M.S. student at the University of Massachusetts, Amherst.


Updated: 2007

# EASTERN BOX TURTLE CAPTURE FORM

Capture of Eastern Box Turtles within the Project Area requires the worker to document the following:

1. Date of Capture:_____

2. Time of Capture:_____

3. Location of Capture (please flag in the field):_____

4. Name of the Worker and cell phone number:_____

5. Name of the Worker completing this Observation Form (if different than above)

_____

6. Description of the Turtle:_____

_____

7. Estimated Length & Width of the Turtle:_____

8. Turtle eye color:_____

9. Mark whether turtle Plastron (underside) is: ____ Concave (male) _____ Flat (female)

10. Indicate what the turtle was doing at time of capture:_____

_____

11. Indicate who the turtle was released to for transport beyond the turtle protection fence at designated release point:_____

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

## Scientific Collection Permit
REPTILES AND AMPHIBIANS

**VALID**
**2018**

Sabatia, Inc.
Robert Gray
21 Observatory Lane
Pocasset,MA 02559

**Date:** 10/24/2018
**NHESP Tracking #:** 17-37094
**Permit #:** 292.18WRA

Subpermittees:

*is (are) hereby authorized, in accordance with the provisions of Section 4, Chapter 131 and 131A of the Massachusetts General Laws, to remove from the wild within the Commonwealth, subject to conditions set forth below, the following species and numbers:*

May capture by hand Eastern Box Turtles and other state-listed species from construction zones in accordance with the approved turtle protection plan (dated 9/25/2018). Must be released in appropriate nearby habitat. The permit holder shall be responsible for conducting the study in accordance with accepted professional standards and practices. NHESP species observation forms must be submitted for all state-listed rare species encountered via the VPRS Reporting System. Within 10 days of the first observation of a given state-listed species, a NHESP species observation form must be submitted to the NHESP. All other NHESP species observation forms reporting subsequent observations of a given species shall be submitted by December 31.

*The following method(s) of taking is (are) hereby authorized:*

Hand Capture

*Collection activites under this permit shall be restricted to the following locations, subject to the approval of private landowners*

Periwinkle Circle, Harwich, MA

*All specimens secured under this permit shall be donated to the following institutions:*

Release upon capture in nearby appropriate habitat outside of construction zone

*No specimen taken under the authority of this permit may be sold. No specimen may be transferred to another not duly licensed.*

*This permit of a copy thereof shall be carried at all times by the permittee and subpermittee(s) while engaged in the activities authorized herein.*

*This permit does not absolve the permittee from compliance in full with any and all other applicable federal, state and local requirements, including the acquisition of a federal endangered species permit if required.*

*Upon expiration of this permit, a complete report detailing all collection activities shall be filed with this office and must include a listing of all species taken, numbers of specimens, and the disposition of same.*

*This permit, unless sooner revoked for cause, shall expire on December 31 of the year of issue.*

Mark S. Tisa

Mark S. Tisa, Director