STATE ENDANGERED

Box Turtle

(Terrapene carolina)

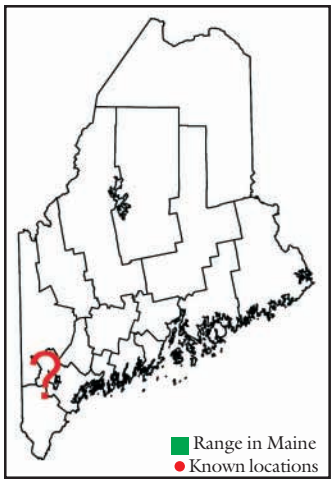
Phillip deMaynadier

Description

Box turtles are well-known for their remarkable ability to seal themselves tightly in their shell during times of danger. The box turtle is distinguished by a brownish carapace (upper shell). Each scute (segment of the shell) has yellow or orange radiating lines, spots, or blotches. The legs and neck have black to reddish-brown skin with yellow, red, or orange spots and streaks. The plastron (lower shell) is tan to dark brown. The box turtle's most distinctive feature is a hinged plastron, allowing the animal to withdraw its legs and head entirely within a tightly closed shell. Males have red eyes, a concave plastron, a thick tail, and long, curved claws on the hind feet. Females have yellowish-brown eyes; a flat or slightly convex plastron; a carapace that is more domed than the male's; short, slender, straighter claws on the hind feet; and a shorter, thinner tail.

Range and Habitat

The box turtle occurs throughout the eastern U.S. but reaches the northern extent of its range in southern Maine. This is undoubtedly the state's rarest reptile, and it has probably never been common here. Box turtles are locally common, but declining elsewhere throughout their range. No populations have been documented recently in Maine, but, if present, would most likely occur in the southwestern part of the state. A few individual box turtles have been found in the last 20 years as far north as New Vinyard in Franklin County and Hermon in Penobscot County, although these may have been released pets.



Box turtles are the most terrestrial turtle in the state. They prefer moist woodlands and wet, brushy fields, especially where sandy soils are prevalent. Box turtles occasionally are found in meadows, bogs, and marshes.

Life History and Ecology

Box turtles emerge from hibernation in late April or early May following the first warm spring rains. They attain sexual maturity at 5-10 years old. Once they reach maturity, they mate anytime during the spring and summer, and females may produce fertile eggs for 2-4 years as a result of a single mating. In Maine, nesting likely occurs in June. Nest sites are typically patches of sandy or loamy soil with adequate solar exposure. Most nests are started in the evening and completed after dark. The female uses her back legs to dig the egg chamber and lays a clutch of 4-5 eggs. Incubation time is dependent on soil temperature, but typically lasts 70-90 days. Hatchlings emerge from September into October. They feed on land or in water and are omnivorous. Food items include snails, crayfish, insects, frogs, salamanders, fungi, flowers, and fruits.

Box turtles seek favorably sunny areas to warm themselves in morning and evening, and seek shelter under rotting logs, decaying leaves, or in shallow pools to escape the midday heat. They enter hibernation at about the time of the first killing frosts, and dig burrows into loose soil, sand, vegetative

debris, or mud of ponds or streams, or they may use mammal burrows. As the soil temperature drops, they dig deeper. Hibernation sites are located within their home range and may be used in successive years. They usually have a home range of 2-4 acres or an area of activity 300-700 yards in diameter. They may live more than 100 years.

Threats

Box turtle populations are declining in New England. Habitat loss and fragmentation stress populations by increasing adult mortality and nest predation. Predators (skunks, foxes, and other mammals), present at high densities in urban areas, dig up nests and consume eggs and young. Humans have a profound effect on box turtle populations. Slow-moving turtles are vulnerable to road mortality. They are popular in the pet trade, and commercial collection is a serious problem. Tens of thousands have been collected in the U.S. to be sold in foreign countries. Thousands have died during shipping or shortly after being taken into captivity. As an endangered species, it is illegal to collect box turtles from the wild or to possess any box turtle in Maine as a pet, even if purchased outside of the state. Pet turtles released in Maine may introduce diseases and critically alter the genetic make-up of native populations uniquely adapted to a northern existence.

Box turtles are likely stressed by colder temperatures at the northern edge of their range. During wet, cool summers, nests may not hatch. Deep frosts in winter may kill hibernating turtles; however, biologists have documented that box turtles at the northern edge of their range can withstand short periods of body freezing.

Conservation and Management

The box turtle was listed as endangered in Maine in 1986 because of its critically small population, stresses from living at the northern edge of its range, and threats to the population from habitat fragmentation and increased urbanization. No viable populations of box turtles have been discovered recently in the state, despite considerable effort to locate rare and endangered species in southern Maine. Focused surveys should be completed in some areas of southern Maine where large blocks of suitable habitat and populations may still persist. Reintroduction techniques have not been developed. Towns with box turtle occurrences should protect remaining areas of open space in a forested, rural environment.

Recommendations:

✔ Prior to land development or forest harvesting, consult with a biologist from MDIFW to assist with planning.

✔ Municipalities should strive to maintain important habitat areas identified by MDIFW as open space, identify these areas in comprehensive plans, and conserve accordingly.

✔ Minimize potential sources of mortality where box turtles are known to occur. Heavy machinery for construction, landscaping, plowing, or forestry should be used during the winter months when turtles are hibernating.

✔ Avoid constructing new roads in the remaining large blocks of open space in southern Maine. Road kill is the major source of adult mortality for all of the state's rare turtles.