

**STATE
ENDANGERED**

Blanding's Turtle

(Emydoidea blandingii)



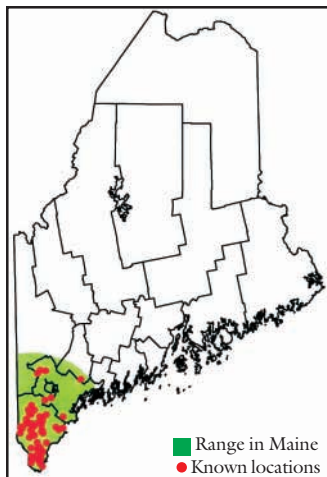
Susan Woodward

Description

This secretive denizen of southern Maine vernal pools and pocket swamps is rarely seen. With its helmet-shaped carapace (upper shell) and hinged plastron (bottom shell), the Blanding's turtle may be mistaken for a box turtle by the casual observer. The Blanding's turtle is 7-9 inches long and distinguished by a black or dark-olive carapace usually patterned with tan or yellow spots or streaks. The head is large with a notched upper jaw and a long, bright yellow neck, throat, and chin. The plastron varies from yellow with dark blotches to almost completely black, and has a moveable hinge used to partially close the shell. Males have a darkly pigmented upper jaw and concave plastron, whereas females have a yellow upper jaw and a flat plastron.

Range and Habitat

Blanding's turtles occur in the northern tier of states from Minnesota to Maine, but the range is not contiguous and there are several separate populations. Maine's population occurs only in southern York and Cumberland Counties and is linked with those in eastern New Hampshire and Massachusetts. Small, isolated populations also occur in Nova Scotia and New York.



In Maine, Blanding's turtles are found most frequently in complexes of small, acidic wetlands and vernal pools located in large blocks (over 500 acres) of forested habitat. They are occasionally found in large marshes, forested and shrub swamps, and slow-moving rivers and streams. Although these turtles spend most of their

time in the water, they readily travel overland from one wetland to another during spring and summer. Upland habitats are critical for nesting, basking, estivating (a period of late summer dormancy), and as travel corridors for migrating between isolated wetlands.

Life History and Ecology

Knowledge of Blanding's turtle life history and movements comes from radio-telemetry studies conducted throughout its range, including one study in southern Maine in the 1990s. Turtles emerge from hibernation in April and disperse to vernal pools and other wetlands used by breeding frogs and salamanders. The turtles eat amphibian eggs and larvae (tadpoles). This abundant food supply is crucial to the survival of turtles because they likely consume much of their annual food needs in May and June. Blanding's turtles readily travel overland (up to 1¼ miles) between wetlands and use up to six different wetlands per season. Most wetlands used are less than ¼ acre in size.

Female turtles reach sexual maturity at 14-20 years of age. Mating occurs from May to July. Nesting usually occurs in mid-June when females move up to one mile from wetlands to search for exposed sunny locations and sandy soils. Prior to human alteration of the landscape, turtles selected forest openings or exposed bedrock areas to nest. Now, most nest in yards, pastures, and along road edges. During nesting excursions, females may remain out of wetlands for 3-17 days. Nest digging is initiated in the evening and completed after dark, and clutches include 5-11 eggs. Nest predation varies, but is usually high and can be 100 percent for some populations in some years. Incubation time is dependent on soil temperature, but typically lasts 68-118 days, and hatching occurs from late August to October. Hatchlings likely overwinter in nearby wetlands.

Turtles bask on sphagnum mats, logs, brush piles, hummocks, rocks, and wetland shores up to 120 feet from the wetland. As vernal pools dry and food supplies dimin-

ish, turtles may estivate for periods of 3-22 days in July to September. Estivation sites are typically under leaf litter in forested areas up to 300 feet from the nearest wetland.

With the coming of fall rains, turtles move to hibernation wetlands, typically vernal pools and shrub swamps. Turtles may hibernate under 1-3 feet of water on the bottom of pools, either partially or completely covered with mud or leaves, slowing their metabolism so much that they need little oxygen. Feeding begins in early spring after water temperatures rise to 60 degrees. Food items include snails, fingernail clams, crayfish, frogs, fish, insects, worms, tadpoles, and plant material. Blanding's turtles may live to be more than 75 years old.

Threats

Turtles have evolved a strategy of long life expectancy to offset a late age at first reproduction and high nest mortality. Because of this unusual life history, Blanding's turtle populations occur at low densities (only about five turtles per square mile in Maine), and they are vulnerable to any source of adult mortality. It takes decades of reproductive effort before a female turtle replaces herself with a single offspring that survives to adulthood. The loss of just a few adults a year (e.g., killed on roads or collected for pets) leads to the long-term decline and extinction of a population.

Habitat fragmentation and sprawl also threaten Blanding's turtles. Fragmentation isolates populations and increases the risk of extinction. Roads cause direct mortality, separate wetlands from nesting sites, and serve as barriers to movement between wetlands. Turtles are attracted to the sunny gravel shoulder of roads for nesting. Roadside turtle nests are easily found by predators and are graded by highway crews. Collecting for pets is illegal and negatively affects local populations by removing valuable breeding adults. Secondary effects of human development – increased predator populations (e.g., dogs, skunks, raccoons), pollution, filling of small wetlands, and blocking upland travel corridors – also limit populations.

Conservation and Management

The Blanding's turtle was a former candidate for federal listing and was state-listed as threatened in 1986. Extensive surveys conducted in the 1990s demonstrated that fewer than 1000 individuals likely occur in southern Maine in a highly fragmented landscape. As a result, the species' status was upgraded to endangered in 1997.

Effective conservation entails identification and conservation of the largest populations and the remaining large blocks of habitat. Blanding's turtles often share their habitat with other rare species like spotted turtles, the ringed boghaunter dragonfly, ribbon snake, and four-toed salamander. Rare turtle populations documented in York, South Berwick, Biddeford, Wells, Alfred, and Lyman have the greatest conservation potential, while smaller, peripheral populations isolated by physical barriers (e.g., Interstate 95) may be in greater jeopardy of local extinction. Towns with Blanding's turtles should consult with MDIFW to identify opportunities to conserve large blocks of

forestland with vernal pools and wetland complexes as rural open space where further fragmentation, development, and road-building should be discouraged. Blanding's turtles are protected from collecting, possession, or killing by the MESA.

Recommendations:

- ✓ Prior to land development or forest harvesting, consult with a biologist from MDIFW to assist with planning.
- ✓ Conserve vernal pools, wetland complexes, and associated upland forest within ¼ mile of known occurrences of Blanding's and spotted turtles from further development and fragmentation.
- ✓ Municipalities should strive to maintain important Blanding's and spotted turtle habitats in a low-density, rural setting and identify these areas in comprehensive plans. Consider protecting wetlands and a 250-foot upland buffer as Resource Protection Districts.
- ✓ Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important habitat for threatened and endangered species.
- ✓ Permit no activities that could lead to the loss or degradation of wetlands, including filling, dredging, sedimentation, or changing hydrology, unless approved by MDIFW.
- ✓ When projects are proposed within 250 feet of wetlands providing habitat for endangered or threatened species, adhere to forestry Best Management Practices (handbook available from the Maine Forest Service, SHS #22, Augusta, ME 04333) and Maine Erosion and Sediment Control Recommendations (available from the Maine Department of Environmental Protection, SHS #17, Augusta, ME 04333).
- ✓ Road kill is the major source of adult mortality for all of the state's rare turtles. Avoid new roads and road improvement projects (e.g., paving, widening) that could lead to increased traffic volume and speed within ¼ mile of known turtle wetlands. All road projects should undergo thorough environmental review to avoid, minimize, and mitigate road mortality to endangered turtles.
- ✓ Avoid intensive development that concentrates human activity and road traffic within ¼ mile of turtle wetlands. Minimize the footprint of yards, buildings, and roads within this area to minimize loss of upland habitat and sources of mortality. Employ *Best Development Practices for Conserving Pool-breeding Amphibians in Residential and Commercial Development in the Northeastern U.S.* (handbook available from Maine Audubon, P.O. Box 6009, Falmouth, ME 04105).
- ✓ Low intensity timber harvesting (single tree, group selection, small patch cuts) is compatible as long as operators avoid wetlands. Winter harvests are recommended to avoid crushing turtles and minimizing impacts to the forest floor habitat used by amphibian prey species. Employ *Forestry Habitat Management Guidelines for Vernal Pool Wildlife in Maine* for timber harvesting around vernal pools and pocket swamps (handbook available from MDIFW, SHS #41, Augusta, ME 04333). 