Turtles of Cape Cod National Seashore

by Dr. Robert P. Cook, Wildlife Ecologist

Cape Cod National Seashore's 46,000 acres play a critical role in supporting the Cape's abundant and diverse wildlife. While the larger, more abundant, or conspicuous species found along the seashore's beaches may be well known to visitors, the vast majority of the seashore's wildlife species are not. Although they may be small and/or secretive, and not often seen by visitors, these species are important ecologically, and are a significant part of the natural heritage the National Park Service works to preserve.

One such wildlife group is the park's turtles. Turtles are unique and immediately recognizable, yet most go largely unobserved. They are only active here part of the year (the warm months), and all but one of the seashore's eleven species are aquatic, which keeps most of them out of the public eye.

Turtles are the most primitive of living reptiles and their defining character, the shell, emerged about 200 million years ago. Along with other reptiles, they represent a transition from the aquatic lifestyle of fishes, to the terrestrial lifestyle of birds and mammals. Their scaly skin provides some resistance to drying, as do their leathery-shelled eggs. Although predominantly aquatic, they breathe primarily with lungs. Their eggs are laid in a terrestrial nest, developing without any parental care. This mode of reproduction means that all turtles, regardless of how aquatic they are, require terrestrial habitats to reproduce.

Cape Cod National Seashore's turtles are found in marine, estuarine, freshwater, and terrestrial habitats. In spite of these habitat differences, they share a generally similar annual life cycle that involves: emergence from hibernation, mating, egg laying by females in late spring-early summer, egg development and hatching over the course of the summer while juveniles and adults feed and grow, and a cessation of feeding and activity as winter approaches. For most turtles, the egg laying step is usually the riskiest part of their annual cycle. All aquatic species must leave the water and travel overland to find a nesting spot, generally an open, sparsely vegetated patch that receives enough sunlight to allow the eggs to develop and hatch before winter. Fields, roadsides, dirt roads, and dunes are generally used here. Eggs hatch out in August and September and hatchlings either emerge from the nest or remain buried underground until the following spring. Adults of both sexes meanwhile return to their respective ponds or swamps and spend the winter in the mud or a hibernation chamber known as a hibernaculum.

Five species of marine turtles occur in the Atlantic Ocean and Cape Cod Bay. Although marine turtles nest and overwinter in the tropics, as the ocean warms over the course of summer, they work their way north and feed in New England waters. As winter approaches this process is reversed. However, Cape Cod Bay acts as a cul-de-sac and in some years, many turtles, predominantly Kemp's Ridley, end up "cold stunned." In an effort to help maintain the populations of these federally threatened or endangered species, volunteers and park staff assist in efforts coordinated by Wellfleet Bay Wildlife Sanctuary to rescue and rehabilitate cold-stunned turtles.

The **Diamondback Terrapin** is an estuarine turtle found in salt marshes, where it feeds primarily on snails, mussels, and crabs. Terrapins occur in the marshes along Cape Cod Bay, with the Wellfleet Harbor area being most important on the outer Cape. Terrapins hibernate in the mud of tidal creeks and mate in the calm waters of the salt marsh in mid-spring. Female terrapins leave the salt marsh in June and early July to nest in the adjacent dunes and uplands. Terrapin populations were decimated in the 19th century by overharvesting for food. They recovered by the mid-20th century, but now face renewed pressures from loss of nesting habitats to development, increased nest predation by raccoons and skunks, and increased adult mortality from road kills. They are listed as "Threatened" by the Massachusetts Natural Heritage Program.

Diamondback Terrapin

Painted turtle

Painted turtles are the seashore's most abundant and widespread freshwater turtle, occurring park wide in just about all freshwater habitats. Its abundance and habit of basking in the sun, make this the most familiar and frequently observed species of turtle. Large numbers can be observed wherever logs and vegetation provide basking sites. Similar to diamondback terrapins, adult female painted turtles are larger than males, a trait that has allowed them to increase their reproductive output. A generalist in terms of diet and habitat needs, painted turtle populations at the Seashore appear secure, although small numbers die on park roads annually, usually in June. Please drive slowly and carefully. Speed limits help protect our wildlife!

The **snapping turtle** is also a very familiar, occurring park-wide in all freshwater habitats. Unlike the painted turtle, it is not very conspicuous. Although they bask, they do this by moving to shallow water, where their shell is just below the water's surface. Although capable of swimming, snapping turtles are more a bottom walker, searching for dead animals or lying in wait for prey. Most visitors encounter either adult female snapping turtles on nesting forays in June, or hatchlings that have emerged in August. Snapping turtles have an undeserved

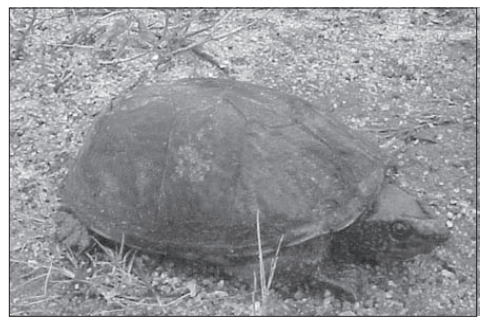
Snapping turtle

reputation for being "aggressive" when in fact, this so-called "aggressive" behavior is used defensively. In water, snapping turtles avoid people and hide from or flee approaching humans (unless they have been habituated by being fed). On land however, where females on nesting forays are vulnerable to predators, they cannot escape and must stand up to and face-down potential predators, which is how they perceive humans. Although many turtles simply withdraw into their shell in response to a predator, snapping turtles have a reduced bottom shell (known as a plastron) that leaves them with a "soft underbelly," making passive resistance a flawed defense. They have to act tough. Snapping turtles only hiss and snap when you are too close. Back off, and leave them alone. They will not come after you. If you need to handle a snapping turtle to remove it from harm's way, always approach and handle it from behind. Its neck is too short to reach very far back.

Spotted turtle

The **spotted turtle** is one the seashore's rare freshwater turtles. While now listed as a "special concern" species by the Massachusetts Natural Heritage program, early naturalists once considered it nearly as common as the painted turtle. Spotted turtles occur park-wide and in many different, shallow freshwater habitats, but they are not numerous. They are semi-aquatic, and may spend a lot of time in upland habitats, primarily in the summer after shallow habitats have dried up. As a result, they move around more than aquatic turtles, which can be a risky behavior in areas with a lot of roads. Spotted turtles are only a few to several inches long, with a black upper shell (carapace) and scattered yellow spots. Reports are few, but they are found often several hundered yards from wetlands, which gives you an idea of how far these turtles can move.

Of all of the seashore's freshwater turtles, we know the least about the **musk turtle**. Also known as the "stinkpot", due to its strong, unpleasant odor, musk turtles have been recorded from kettle ponds in Eastham, Wellfleet, and Truro. This small turtle (maximum size is around five inches) is highly aquatic, more a bottom walker than a swimmer or basker, which means it is not conspicuous or frequently observed. When found, musk turtles are often mistaken for young snapping turtles, which they superficially resemble. Although the musk turtle is common elsewhere in New England, habitats here are marginal from its perspective and it is uncommon. Encountering one here is a rare and exciting event.



Musk turtle

Eastern box turtle

The **Eastern box turtle** is familiar to most seashore visitors. It is a terrestrial turtle found primarily in forest and fields. It is a species that shifts habitats seasonally to avoid excessive heat or cold. In many ways it is similar to humans who seek relief from summer heat by visiting Cape Cod, even soaking in ponds and puddles to cool off. Box turtles are similar to humans in diet (feeding on a broad range of plant and animal foods) and demographics (maturing in their teens and being are capable of living 100+ years). Although many people think of box turtles as a common species based on childhood memories, populations in the Northeast are not faring well on the region's increasingly urbanized landscape. It is a "special concern" species in Massachusetts. Cape Cod National Seashore, with its fairly intact, unfragmented landscape provides some of the best remaining box turtle habitat in New England.

Although recent surveys conducted as part of the seashore's Inventory and Monitoring Program show that our six species of resident turtles appear to be doing okay, not all turtle populations in New England are. Habitat loss and fragmentation, and increasing traffic and predation are placing pressure on many populations. The location of open habitat suitable for nesting determines how far a female turtle must travel from the water to nest, and hence how vulnerable she is to road kill or predation. Further, turtle nests can be heavily preyed upon by raccoons, skunks, and fox. Predation of turtle nests is a natural process, and has been compensated for by the legendary longevity of turtles. However some predator populations are inflated by human-provided food. These "subsidized predators" contribute to excessive predation, which is not natural, and can prevent successful redproduction. While problematic for humans, disease outbreaks that knock down the populations of subsidized mammalian predators may provide needed relief for turtle populations.

As you spend your time exploring the park, be on the lookout for our turtles. While they can be easily overlooked, stumbling upon one, or better yet using your knowledge of them to find and observe them, is an exciting and satisfying experience. Remember that although these long lived animals have survived the extinction of the dinosaurs and become a symbol of persistence, their future survival on our human-dominated landscape increasingly depends on our being mindful of their presence.