AMPHIBIANS AND REPTILES OF CAPE COD NATIONAL SEASHORE

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Amphibians and reptiles are an interesting but often overlooked component of the Seashore's wildlife. In their structure and survival strategies they are intermediary between fish and the more highly evolved and familiar birds and mammals. Though there is much variation, as a broad generalization, amphibians and reptiles represent a transition from the aquatic to the terrestrial. Since all life on earth is water dependant, to accomplish this they have had to develop ways to avoid drying out while using, to varying degrees, non-aquatic habitats. Amphibians are less advanced in this regard. They require moist, if not wet habitats, and their eggs have little resistance to drying. Reptiles are more resistant to drying. Their scaly skin and shelled eggs make them less dependant on aquatic habitats, and allows them to be more conspicuously active, especially in the daytime, and to inhabit drier habitats

As a result of these physiological constraints, many amphibians and reptiles lead inconspicuous lives, avoiding heat and dessication by hiding under cover objects or burrowing. Many are nocturnal or seasonal, awaiting spring rains to become active. Because of this, most people only encounter a few of the species found at Cape Cod National Seashore. This lack of familiarity with amphibians and reptiles has historically lead to much myth and misunderstanding about them, and also gives a false impression about their abundance and diversity.

Although the amphibians and reptiles of Cape Cod National Seashore are more abundant and diverse than people realize, there are, in fact, fewer species occurring today on Cape Cod than on mainland Massachusetts. The Cape has less habitat diversity than the mainland (e.g. no swift, rocky streams or mountains) and many species found on the mainland probably never colonized the Cape in the wake of the glacial retreat that formed Cape Cod. The Cape has had dramatic changes wrought to its landscape since Europeans arrived in the 17th century. Most of its original forest was cut, livestock grazing de-stabilized the landscape, and salt marshes were ditched and diked. More recently, Cape Cod was made an island by the Cape Cod Canal, pesticides went through a period of popularity, and housing and development continue towards full buildout.

While all of these factors have undoubtedly lead to the decline and loss of species on Cape Cod, the National Seashore still remains a very important area for amphibians and reptiles. It is increasingly becoming one of the few remaining places in the region where species once common regionally still remain common. In addition to its importance to the five species of migratory marine turtles that forage in the offshore waters of Cape Cod, there are 25 species of amphibians and reptiles that live out their entire life here. Many of these species are important in the functioning of park ecosystems, consuming large quantities of small prey items, such as insects, and serving as prey for larger species of wildlife. Three species of Massachusetts state-listed species occur in the National Seashore. The diamondback terrapin (Threatened) is a salt marsh turtle. The northernmost known population occurs in the marshes along the periphery of Wellfleet Harbor, though individuals have been found in Provincetown. Terrapins live most of their life in the salt marsh, but females nest on land, usually among the dunes and open habitats adjacent to the marsh, often within the National Seashore. The eastern spadefoot toad

(Threatened) is derived from desert ancestors. It is adapted to breed explosively following heavy rainfalls or when water tables are very high, in shallow, temporary ponds. It is rarely seen or heard other than on rainy nights in spring and summer. Spadefoots have been found throughout the park, particularly in the Province Lands. Given their rarity elsewhere in the state, Cape Cod National Seashore appears to be one of the most important sites for spadefoot toads in Massachusetts. The terrestrial eastern box turtle (Special Concern) is a species familiar to most people. It has declined throughout much of its range in the eastern United States due to habitat loss, road kill, and pet collection. Fortunately, road kills seem to be infrequent here and it still appears to be fairly common throughout the National Seashore. Recent surveys suggest that the National Seashore supports some of the densest populations of box turtles in Massachusetts. Spotted turtles, removed from the Special Concern list in 2006, appear to be widespread in the Seashore, but not very numerous. They have been found in a number of shallow, aquatic habitats but little is really known about their habitat use in the National Seashore. Some are known to hibernate on land and migrate to wetlands in the spring.

Two other species, though not officially listed as rare, are of great interest, each presenting a mystery of sorts. The eastern hog-nosed snake is a species special in a number of ways. It feeds almost exclusively on toads, with a pig-like nose adapted to burrowing after them in loose, sandy habitats. It has an elaborate defensive behavior, in which it hisses and flairs like a cobra, and then rolls over and plays dead. Though toads are still common, and there is plenty of sand, the hognose snake appears to have declined in the Seashore. But, it is also difficult to find and its true status is not known. Finally, there is northern water snake, an inhabitant of swamps, marshes, and pond margins where it feeds on fish and frogs. There appears to be an abundance of food and appropriate habitat, but water snakes are rarely observed here, mostly at kettle ponds in Wellfleet. Reasons for this apparent rarity are unknown.

The bottom line is that, while we have good information on the occurrence of amphibians and reptiles in the National Seashore, there is much we do not know about their distribution, abundance, and population trends. Given the widespread declines in amphibians and reptiles that are being reported from many areas of the United States and beyond, this information is now more important than ever. Protected areas, such as Cape Cod National Seashore will be critical for many species' long term survival. For a number of species, such as spadefoot toads, eastern box turtles, hog-nosed snakes, ribbonsnakes, and black racers, the National Seashore provides some of the most important remaining habitat in Massachusetts. Fortunately, the National Seashore has recently increased its efforts to inventory and monitor its wildlife, and we are gaining a better understanding of our amphibians and reptiles. The following table summarizes the current (through May 2010) state of knowledge regarding the occurrence and distribution of amphibians and reptiles at Cape Cod National Seashore. It is based primarily on the observations of Irene Seipt, Kyle Jones, John Portnoy, Brett Still, Bob Prescott, Betsy Colburn, Joan Milam, and Jackie Sones in the 1980's and 1990's, and Kelly Boland, James Borgmeyer, Scott Buchanan, Robert Cook, Amy Goodstine, Stan Kot, Peter Paton, Matthew Schult, Bradd Timm, Todd Tupper, and numerous others in more recent years.

Should you encounter any of the species discussed above, or observe species in towns previously unrecorded, please take a photograph and contact me at 508-487-3262 x 0503 or Robert_Cook@NPS.GOV.

Amphibians and reptiles of Cape Cod National Seashore and adjacent towns, based on recent records (1980 through May 2010). MA SC and MA T denote Massachusetts Special Concern and Threatened Species, respectively. * denotes documented presence inside National Seashore. Marine species forage in offshore waters in summer and autumn, and may wash up on beaches due to cold stunning in late autumn – early winter.

SPECIES	Eastham	Wellfleet	Truro	P'Town
spotted salamander	X*	X*	X*	
red-spotted newt	X*			
four-toed salamander	X*	X*	X*	
eastern red-backed salamander	X*	X*	X*	X*
eastern spadefoot toad (MA T)	X*	X*	X*	X*
Fowler's toad	X*	X*	X*	X*
grey treefrog	X*	X*		X*
spring peeper	X*	X*	X*	X*
American bullfrog	X*	X*	X*	X*
green frog	X*	X*	X*	X*
pickerel frog	X	X*	X*	
wood frog	X*	X*		
leatherback turtle (marine)	X	X	X	X
green turtle (marine)	X	X	X	X
loggerhead (marine)	X	X	X	X
hawksbill turtle (marine)	X	X	X	X
Kemp's ridley turtle(marine)	X	X	X	X
snapping turtle	X*	X*	X*	X*
musk turtle	X	X*	X*	
painted turtle	X*	X*	X*	X*
spotted turtle	X*	X*	X*	X*
diamond-backed terrapin (MA T)	X	X*	X	X*
eastern box turtle (MA SC)	X*	X*	X*	X*
eastern gartersnake	X*	X*	X*	X*
eastern ribbonsnake	X*	X*	X*	X*
northern watersnake		X*	X*	
northern ring-necked snake	X*	X*	X*	X*
black racer	X*	X*	X*	X*
eastern hog-nosed snake	X	X*	X*	X*
eastern milksnake		X*	X*	X*