Bog Turtle, *Glyptemys muhlenbergii*

Status: ***State:*** Endangered ***Federal:*** Threatened

Identification

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The bog turtle is a tiny, dark turtle with a distinct orange patch behind the tympanum (ear membrane) on either side of the head. The scutes (scale-like horny layers) of the carapace (upper shell) are brown or black and may have yellow or reddish centers. Likewise, the plastron (underneath shell) is brownish-black with a light yellow or mahogany center. The limbs are brown and may be mottled with variable amounts of dark yellow, orange, or red blotching. Bog turtles, one of the smallest and most secretive of North America's turtles, measure only 7.6 to 10 cm (3.0 to 3.9 in.) long as adults. The male bog turtle has a concave plastron while that of the female is flat or slightly convex. In addition, the male has a long, thick tail and long foreclaws.

Habitat

Bog turtles inhabit calcareous (limestone) fens, sphagnum bogs, and wet, grassy pastures that are characterized by soft, muddy substrates (bottoms) and perennial groundwater seepage. Bog turtle habitats are well-drained and water depth rarely exceeds 10 cm (four in.) above the surface. Flora associated with bog turtle habitats include sedges (Carex spp.), rushes (Juncus spp.), mosses, and grasses. These habitats may also contain red maple (Acer rubrum), alder (Alnus spp.), skunk cabbage (Symplocarpus foetidus), cattail (Typha spp.), willow (Salix spp.), highbush blueberry (Vaccinium corymbosum.), jewelweed (Impatiens capensis), swamp rose (Hibiscus palustris), dogwoods (Cornus spp.), shrubby cinquefoil (Potentilla fruticosa), buttonbush (Cephalanthus occidentalis), rice-cut grass (Leersia oryzoides), wool-grass (Scirpus cyperinus), arrowhead (Sagittaria spp.), watercress (Nasturtium officinale), St. Johnswort (Hypericum spp.), blue vervain (Verbena hastata), sundew (Drosera spp.), pitcher plant (Sarracenia purpurea), cinnamon fern (Osmunda cinnamomea), and sensitive fern (Onoclea sensibilis). Because open areas are favored for basking and nesting, vegetative succession may cause the dispersal or loss of bog turtle colonies.

Many of the emergent wetlands inhabited by bog turtles have served as pastures during historic or current times. Grazing by livestock maintains the successional stage and softens the ground, creating favorable conditions for these turtles. Although controlled grazing is beneficial, overgrazing can result in excessive fecal runoff that may degrade water quality or encourage the growth of undesirable plant species.

Linear drainage ditches provide an alternative habitat for bog turtles in some areas of the state. These ditches, which have healed over time, may support remarkably high bog turtle densities.

Status and Conservation

Due to population declines, restricted habitat preference, habitat loss, and collecting, the bog turtle was listed as an endangered species in New Jersey in 1974. In 1997, the U.S. Fish and Wildlife Service included the bog turtle on its list of federally threatened species.

The New Jersey Natural Heritage Program considers the bog turtle to be, "globally, either very rare and local throughout its range or found locally in a restricted range or because of other factors making it vulnerable to extinction throughout its range," and, "imperiled in New Jersey because of rarity" (Office of Natural Lands Management 1992).

Since the 1970s, biologists have studied the life history, habitat use, and distribution of the bog turtle in New Jersey. Current conservation efforts include habitat management, population monitoring, land acquisition, and landowner outreach. Since most bog turtle populations occur on private lands, biologists devote substantial amount of time educating private landowners about bog turtle conservation. Private landowners can benefit from having bog turtles on their land through various federal cost-sharing programs, which provide funding for habitat management and improvement. Biologists from the New Jersey Endangered and Nongame Species Program (ENSP) are presently implementing a watershed-based management strategy for the protection of critical bog turtle areas.