

Diamondback Terrapin (*Malaclemys terrapin*)

Information on the diamondback terrapin.

By Jennifer Blanchard

Diamondback terrapins (*Malaclemys terrapin*) are one of the most physically variable turtles, having different shell patterns, skin colors, markings and shapes, even among specimens within the same subspecies. Another trait that distinguishes them is their large hindfeet, which gives them greater mobility in strong tidal currents and undertows.

Description and Natural History

Diamondback terrapins are medium-sized turtles that have a grayish, nearly black carapace. Their plastron is usually a yellowish or greenish gray. With white skin that's patterned in black and gray, these turtles have markings that are as unique as human fingerprints.

They have webbed feet for swimming and strong claws for climbing up riverbanks. Male terrapins are about 5 inches long; females are usually 9 inches. Terrapins can live to be more than 40 years old, though many die as hatchlings due to predation.

Terrapins are found in brackish water, salt marshes and lagoons along the Atlantic and Gulf coasts from New York to Texas. There are seven subspecies: *Malaclemys terrapin terrapin*, the northern race found from Cape Cod, Massachusetts, to Cape Hatteras, North Carolina; *M. t. centrata*, which shares part of its range with the northern race and also occurs as far south as Florida; *M. t. tequesta*, the Florida East Coast terrapin found in Florida; *M. t. rhizophorarum*, an obscure subspecies found in the Florida mangroves; *M. t. macrospilota*, the ornate diamondback of the southern part of the Florida Gulf Coast; *M. t. pileata*, the Mississippi diamondback found from Florida to eastern Louisiana; and *M. t. littoralis*, the Texas diamondback.

Captive Care

An adult terrapin needs at least a 60-gallon tank with a large basking area. Basking sites can be built using slate rock, river rock, etc., and should have a heat lamp to keep temperatures in the mid 80s Fahrenheit. They also require a UVB light and a day-night cycle that approximates the current season. The water temperature should be approximately 78 degrees Fahrenheit.

Wild diamondbacks are found in brackish habitats, and providing captive terrapins with saltwater is important. Add one-fourth cup of salt per 20 gallons of water; commercial kits are also available at tropical fish stores. Good filtration is essential to maintaining their health.

In nature, *M. terrapin* is predominantly carnivorous, eating a wide range of salt marsh mollusks and crustaceans, as well as insects and fish. In captivity, however, these turtles usually accept commercial turtle food, insects and fish. For variety, offer smelt or cooked shrimp (not too often), but avoid freshwater crayfish. Adults should be fed daily, while juveniles need to be fed several times a day. Good sources of calcium for terrapins are coral (as substrate), calcium blocks and cuttlebone (such as that sold for birds). Terrapins tend to be messy eaters, necessitating more water changes or feeding them in a separate location.

Terrapins, although not federally protected, are still protected in many states, which means keeping them is either illegal or allowed only with a permit. Check your state and local wildlife laws if you plan to acquire a terrapin. Captive-bred specimens are always the way to go.

Conservation

Malaclemys terrapin populations are facing many threats to their continued survival.

"Significant threats include loss of nesting habitat, encounters with automobiles, predation, commercial harvest and incidental drowning in crab pots," said George L. Heinrich of Heinrich Ecological Services. "Some threats are specific to particular regions, while others occur nearly rangewide."

There are two solutions to the crab trap problem: a modified trap design and an excluder device called the bycatch reduction device (BRD), originally developed by Dr. Roger Wood of the Wetlands Institute in Stone Harbor, New Jersey. The modified traps are 6 feet tall instead of 2 feet tall and are not fully submerged, leaving 2 feet of the trap extending out

of the water so caught terrapins won't drown. The BRD prohibits terrapins from entering the trap, but still allows entry of targeted crabs.

Gravid females often cross roads to nest and are killed, which also destroys any viable eggs. For this reason, The Wetlands Institute is head starting terrapins. Researchers monitor roadways during nesting season and retrieve eggs from female terrapins killed by road traffic. They then incubate and hatch the eggs, raise them until they are yearlings and then release them into the wild.

"Another problem, more or less specific to Maryland, is the taking of large numbers of adult terrapins to be sold in food markets, mostly in the Asian street markets in big cities," said Russell Burke, Associate Professor of Biology at the University of Hofstra. "New York City is a prime example of this. The terrapins being sold in large numbers there apparently come mostly or entirely from Maryland.

"The biggest problem is the most intractable one, the loss of terrapin habitat," Burke said. "Marshes are being lost due to natural sediment flow; marshes are being covered by fill material; and shorelines are being 'hardened' against erosion, which blocks females from coming ashore to nest. Even ocean level rise has an important effect and may end up being the most important. As ocean levels rise, salt marshes go under, and they can't spread inland because of development, so they disappear, and the terrapins will go with them."

Education efforts are becoming a huge part of terrapin conservation. Heinrich and his research partner, Dr. Joseph A. Butler, organized a workshop on the ecology, status and conservation of terrapins.

"That workshop provided an opportunity for over 60 participants to share new research findings, discuss conservation concerns and establish a national Diamondback Terrapin Working Group," Heinrich said. "This initiative will work to unite all individuals and organizations concerned with the decline of the species and begin to lay the foundation for a rangewide conservation plan. The Working Group is committed to and supports research, management, conservation and education efforts that benefit diamondback terrapin populations and their associated ecosystems."

Heinrich has also been doing his own research alongside Dr. Butler. Their main focus is Florida.

"Although the diamondback terrapin occurs in 16 states along the Atlantic and Gulf coasts, the coastline of Florida represents nearly 20 percent of the species' entire range," he said. "Three subspecies are endemic to Florida with a total of five of the seven formally described subspecies present. The other states only have one or two subspecies each and considerably less terrapin habitat diversity. Consequently, Florida should be considered the single most important state for terrapin conservation. That said, it is still important to develop a rangewide conservation plan that will protect terrapin populations from Cape Cod, Massachusetts, to southern Texas."

In addition to his field research, Heinrich conducts natural history programming that targets formal and nonformal educators.

"Turtles are an excellent group to use for teaching ecology and conservation," he said. "Educators play a key role in conserving these ecologically important vertebrates. The 'Natural History and Conservation of Florida Turtles' workshop is now in its fourteenth year and includes a classroom session on diamondback terrapins. This workshop is designed to provide educators with a good introduction to the natural history and conservation of Florida turtles through both classroom presentations and first-hand experiences."

One of the most unique North American turtles, M. terrapin is in need of conservation. Turtle enthusiasts interested in keeping this turtle should only buy captive-bred animals, and keepers should consider breeding their captives to help take pressure off of wild populations.