

Ornate Box Turtle (*Terrapene ornata*)

Family Emydidae

Subspecies: None currently recognized

Updated 2025



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Description/Identification: The Ornate Box Turtle is a small terrestrial species of turtle with a highly domed carapace, or upper shell resembling that of an old Army or World War II helmet. The rear and peripheral margins of the carapace are usually fine, and unserrated, or only slightly serrated, and the carapace is also marked with one to 3 low, slight longitudinal keels, and each scute on the carapace is sculptured in appearance, resembling the grains within wood or from within a tree-ring. Male and female Ornate Box Turtles are similar in size and appearance; males, however, have longer and thicker tails, with the cloacal or ventral opening located much further from the margins of the carapace, than the females, which have shorter tails, and cloacal openings much nearer to, or underneath the margins of the carapace. A small turtle, Ornate Box Turtles usually range from about 3.9 to 5.9 inches in carapace length. Their feet are only very slightly webbed.

Males also have concave plastrons, as opposed to flat or convex plastrons in females, longer fore-claws than females, and the irises of the eyes in males are usually much more red to orange, while the irises of females are usually more brown or yellow, although females can also have red or orange irises. The plastrons of both sexes are strongly hinged at the anterior third or so of the underside. The scalation on the fore and hind limbs are large, and plate-like, and the jaws and beaks slightly sloping and overarching. As with most turtles, Ornate Box Turtles are toothless, and instead have hardened, bony, keratinized beaks and horny plates along the maxilla and premaxillae on the inside of the mouth. Also inside the mouth, the short, pinkish to reddish thick, fleshy tongue is mostly fixed, and can only extend slightly outside the mouth in terrestrial Ornate Box Turtles.

The dorsum color of the carapace is usually a black to dark brown, or grayish-brown with a series of brighter yellow, orange, or yellow-orange spots, streaks, dashes, lines, or other markings radiating in roughly a “star-shaped” patterning outward from each scute on the carapace, although this patterning can also be more scattered on some individuals. Deeper orangish markings may also line the outer marginal scutes of the carapace. The plastron is usually yellow to orangish-yellow with darker brown or reddish-brown lines, as if they were made by a “paintbrush”, heavily marking or covering the plastron on each scute. The head, limbs, and skin are usually a dark grayish, to dark brown with scattered, lighter flecks or spots of yellow or red, particularly in males, which also may have more red, orange, or yellow tinged jaws.

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Plastron, © DFW Urban Wildlife

Hatchling Ornate Box Turtles, which are rarely found or observed, are similar in appearance to the adults, but have darker brown carapaces with more irregular yellow to golden-yellow patterning, and a lighter yellow dorsal or vertebral stripe on the carapace, and a yellow plastron with a single, large dark brown or reddish-brown spot or blotch. Young or juvenile Blanding's Turtles (*Emydoidea blandingii*), may be confused with Ornate Box Turtles, but have more heavily patterned or spotted heads and limbs, less highly domed carapaces, and only a partial hinge on the plastron.

No subspecies of the Ornate Box Turtle are presently recognized.



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Range and Distribution: Ornate Box Turtles range in the central United States from South Dakota and southeastern Wyoming, south to Texas, southwest into northern Mexico, New Mexico, and Arizona, and southeast to Louisiana, east to Missouri and Illinois. More isolated, fragmented populations occur in Iowa, Wisconsin, northwestern and northeastern Illinois, and northwestern Indiana. In Wisconsin, Ornate Box Turtles are restricted to, and only occur in the deep, sandy soiled floodplains of the lower Wisconsin River and its tributaries in southwestern and south-central Wisconsin. Colder winters are believed to limit the range of Ornate Box Turtles elsewhere in the state, despite the availability of suitable habitat in central and northern Wisconsin.

Habitat: Ornate Box Turtles are almost strictly a prairie relict species, being found only in deep, sandy or loamy soiled habitats enabling them to overwinter deep enough underground in their disjunct, isolated ranges. Sandy, dry prairies, oak savannahs or oak barrens, and old fields are the preferred habitats of Ornate Box Turtles. They may also be found high up on adjacent, open west or south, south-west exposed bluff-side prairies, or adjacent open oak forests and woodland, or oak woodland edges as well. Agricultural cultivation and dense pine plantations seem to fragment their preferred habitats.

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Feeding and Diet: Ornate Box Turtles are omnivorous, feeding on a wide variety of plant and animal material. They may forage and feed on grasses, berries, mushrooms or other fungi, prickly pear cacti leaves and pads, and other fruits, vegetable, or plant matter. They will also readily eat a wide variety of terrestrial insects and larvae, earthworms, carrion (dead or decaying plant and animal material), slugs, snails, or other terrestrial mollusks, other sorts of terrestrial arthropods, or sometimes even small fish or amphibians and their eggs or larvae, should they come across and are able to catch them.

Natural History: The Ornate Box Turtle is Wisconsin's most terrestrial turtle species. Although they are primarily terrestrial, Box Turtles might still wander into and utilize shallow puddles, or other shallow water when encountering the opportunity. They overwinter deep underground within self-excavated burrows, or in mammal burrows, and begin to emerge in late April or May. In the spring and the fall, Ornate Box Turtles are diurnal and can be found active during any time of the day, but during the hotter or warmer summer months, become more reclusive during the day, often seeking thermoregulatory shelter underneath bushes and thicker vegetation, in rock cavities and crevices, or in shallow burrows. They may also be found seeking shelter underneath sheets of tin, large logs or stumps, or underneath rock ledges or overhangs further up on open bluffs. Ornate Box Turtles are a very slow growing, and slow to mature species, with males not reaching sexual maturity until they are at least 8 or 9 years, and females might not reach maturity until they are 10 to 12 years.

Mating and copulation can take place throughout the year during their active seasons, but most often in the spring or fall. Copulating male Box Turtles can become very amorous, and initiate mating and copulation by nipping at, lunging, and mounting the females in order to mate with them. Nesting may take place afterwards from late May through June or July, where females construct a cavity or shallow burrow on the edges of sand blows or adjacent bluff-sides, laying anywhere from two to eight ellipsoidal brittle shelled eggs, making them small clutches among Wisconsin's turtles. Incubation lasts for about 50 to 70 days, depending on the temperatures and other environmental factors. Throughout the year, Ornate Box Turtles are generally active until September or October. Box Turtles, due to their terrestrial nature and biology, may also be confused with tortoises, however, Wisconsin does not have any native "true" tortoise species, and they are not closely related to one another.

Hatchlings then emerge by late August or September, with use of their egg-tooth or caruncle, although Ornate Box Turtles may overwinter in their nests for the year, and emerge the following spring. Throughout their lives, Box Turtles maintain relatively large home ranges, which might overlap with one another, and are very site-fidelic turtles, often returning to the same nesting and overwintering areas year after year. Ornate Box Turtles are shy, mild-mannered turtles, rarely offering to bite or act offensively when encountered. Instead, they earn their name "box" turtle by withdrawing into their shells, and using their strongly hinged plastrons to completely close or seal-up their shells as their main line of defense against threats. They may hiss while doing so by expelling air through their shells as they withdraw their heads and necks, or attempt to kick or scratch as well. During the summer, Ornate Box Turtles are especially active before and shortly after thunderstorms or other periods of rain.

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Sometimes referred to locally as “sand turtles”, Ornate Box Turtles were much more abundant in isolated pockets or populations across the southern two-thirds of Wisconsin in their deep, sandy-soiled habitats, but have declined drastically over the decades due to habitat loss and fragmentation, road and highway mortality, and overcollection and overexploitation for the pet and biological supply trades. Due to all of these conservation factors, Ornate Box Turtles are now Wisconsin’s most endangered turtle species, and are a state of Wisconsin endangered species. They occur now only a very small number of populations across Wisconsin. Exotic, invasive plants, such as Spotted Knapweed (*Centaurea stoebe*) and Black Locust (*Robinia pseudoacacia*) also threaten the suitability of prime Ornate Box Turtle habitat.

The first Ornate Box Turtle conservation program in Wisconsin was developed and initiated by the Wisconsin Department of Natural Resources’ Endangered Species Bureau in 1992, which was twofold: to preserve genetic diversity of Ornate Box Turtles in Wisconsin represented only by small, fragmented populations, and to develop and implement methods to help rebuild populations. These methods involved two strategies; translocation and through headstarting programs coordinated by the Milwaukee County Zoo, Henry Vilas Zoo, Racine Zoo, and private citizens. Translocation and headstarting of turtles from Wisconsin proved to have been successful; however, translocation of turtles from other states (i.e. northern Texas, central Kansas, and northern Nebraska) ultimately were not successful, as these turtles were not adapted to live in Wisconsin. Unfortunately, Wisconsin’s Ornate Box Turtle headstarting program became ceased in 2013.

Ornate Box Turtle eggs and hatchlings are most susceptible to a large number of different predators. Many different species of birds, including large birds, snakes, and a wide array of carnivorous mammals such as raccoons, opossums, skunks weasels, skunks, foxes, and coyotes and otters will all readily eat hatchling turtles or turtle eggs. Adult Ornate Box Turtles have relatively fewer predators, but can still be eaten by many carnivorous mammals if given the opportunity.

Conservation Status: Ornate Box Turtles are currently listed as a “State Endangered” species in Wisconsin. They are furthermore regulated and protected along with all other of Wisconsin’s herptiles. Ornate Box Turtles are Wisconsin’s rarest and most imperiled turtle species. Ornate Box Turtles are currently not protected or regulated federally. Ornate Box Turtles are currently IUCN Red-List Near-Threatened (NT).