

Mudpuppy (*Necturus maculosus*)

Family Proteidae

Subspecies: None currently recognized

****Updated 2025***



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Larval Stage. © Nick Scobel.

Description/Identification: The Mudpuppy is a species of large, fully aquatic, or neotenic, salamander, meaning they retain their juvenile and larval physical characteristics throughout their lives into adulthood. Mudpuppies range in dorsal coloration from rusty brown to grayish with scattered dark black to bluish-black spots or blotches throughout the body. Some specimens previously believed to be subspecies can be dark bluish-black in dorsal color with finer scattered dark spots. The ventral surface is lighter gray to cream colored with darker brown or black spots. Juvenile and larval Mudpuppies differ from the adults by having a much darker black or brown ground color with two, more prominent yellow to greenish-yellow longitudinal stripes. In both juveniles and adults, a black to dark brown ocular stripe also runs along each side of the head. Inside the mouth, Mudpuppies have two rows of small, conical and homodont (all the same) teeth, with interlocking lips, allowing them to act as suction feeders. Unlike most salamanders, Mudpuppies lack a free-moving tongue inside the mouth.

The most distinctive features of Mudpuppies are their feathery or bushy reddish colored external gills, and laterally compressed, rudder-like tails. The head is comparatively large, broad, and flattened, and the eyes small. Mudpuppies also possess four toes on each foot. Mudpuppies are Wisconsin's largest species of salamander, ranging from about 11 to 15 inches snout-to-tail length, on average (or about 8 to 12 inches snout-to-vent length). The limbs are also fairly small, and there are 15-16 costal grooves. Males and females are similar in appearance, except that males will develop swollen cloaca during the breeding season, and possess two prominent backward-pointing papillae or protrusions behind the vent. No subspecies are currently recognized.

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Range and Distribution: Mudpuppies occur from the western tier of the New England/Northeastern States, west through the southern portions of Quebec, Ontario, and Manitoba, Canada, and south in the Eastern and Midwestern United States in states along the Mississippi River to Louisiana. In Wisconsin, Mudpuppies can occur throughout the state.

Habitat: Mudpuppies occur in large, permanent bodies of water, including lakes, large streams and rivers, including the Great Lakes themselves (Lakes Superior and Michigan surrounding Wisconsin). They are mainly bottom dwellers, often living under and amongst submerged to partially submerged rocks, along riverbanks or riprap, or other debris, particularly below dams or along lake and waterbody edges. Mudpuppies have been documented at water depths of up to 65 to nearly 100 feet, or more. Although they are primarily bottom-dwellers, they are also able to readily swim well through bodily undulation, much like most fish.

Feeding and Diet: Mudpuppies are primarily carnivorous, and have been recorded to eat a variety of smaller, aquatic vertebrate and invertebrate prey and food items. These salamanders will eat aquatic crustaceans, aquatic insects and their larvae, earthworms, mollusks, small fish and their eggs, or other smaller amphibian larvae. Only a small portion of their diets consist of algae or inorganic matter.

Natural History: Mudpuppies are Wisconsin's only fully aquatic species of salamander throughout their lives, never venturing onto dry land. These salamanders are active throughout the year, and are occasionally captured in fish traps or by ice fisherman. They are primarily nocturnal or crepuscular in clearer waters, but can be active during the day in murkier waters and in the winter. They are often erroneously believed to be poisonous or dangerous; however, this is not the case. Their extremely slimy skin make Mudpuppies almost impossible to hold onto, which are their primary lines of defense against predators.

Mudpuppies breed in the fall in late October or early November, and may congregate in large numbers amongst shallow, rocky waters. Males will perform a nuptial dance to court females, while depositing spermatophores to be fertilized. However, egg laying does not occur until the following year in late May or early June.

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Ventral/Belly View. © Kansas Herpetofaunal Atlas.

Female Mudpuppies will then construct a nest cavity underneath rocks or other debris in late spring, laying up to about one hundred eggs fastened to the upper surface of the cavity, and will then guard and aerate the eggs for about 2 months before they hatch. Mudpuppies, which are also referred to as “waterdogs”, are supposedly named for their ability to vocalize by producing clicks or squeaks, although this may be questionable. Mudpuppies are also still sometimes blamed for negative impacts or reductions to game and sport fish populations by consuming their fry and eggs. This is not usually the case, however, in most natural cases outside of artificial fish hatcheries and spawning sites.

Mudpuppies, in turn, may be predated upon by water snakes, large predatory fish, and some aquatic mammals such as mink and otters. Large wading birds, such as herons, and birds of prey may also catch Mudpuppies as well.

Conservation Status: In Wisconsin, Mudpuppies are listed as “Common”, and can be common in the right, large, permanent waterbody habitats. However, they are still regulated and protected along with all other of Wisconsin’s herptiles under N.R. 16. They are also the only known host for the state endangered Salamander Mussel (*Simpsonaias ambigua*), which also make Mudpuppies of further conservation interest. Mudpuppies are currently not protected or regulated federally. Mudpuppies are currently IUCN Red-List Least Concern (LC).