

Meet The Mudpuppy

Photos and text by Allen Blake Sheldon



A strange creature walks the floor of the the Mississippi River

Although some people say amphibians and reptiles are ugly or slimy, I have always defended them faithfully. However, when it comes to the mudpuppy, I have to admit this is one ugly and slimy critter — really slimy. Just try holding one. Mudpuppies are also called “water dogs,” although they bear little resemblance to either puppies or dogs. At one time it was falsely believed that these animals barked.

The common mudpuppy, *Necturus maculosus maculosus*, is an amphibian whose range extends from southeast Manitoba to southern Quebec, down to southern Missouri and northern Georgia. In the Mississippi River mudpuppies are found from Missouri upriver to St. Anthony Falls, which blocks its upstream progress. In the Arkansas River drainage system in the South, *Necturus maculosus*



Above: Mudpuppies can swim, but mostly they walk along the bottom.

Left: Mudpuppies develop large, bushy, red gills in oxygen-poor water. This one was photographed near Dresbach, Minn.

maculosus is replaced by the Red River mudpuppy, *Necturus maculosus louisianensis*.

What is a mudpuppy, anyway? It is a large salamander, averaging 13 to 16 inches long, including its vertically flattened, paddle-like tail. It is, of course, the color of mud — brown to gray to nearly black with darker spots or blotches, which provides excellent protective camouflage. It has bushy red gills when it lives in slow-moving, warm, oxygen-poor water, and small, compact gills when it lives in well oxygenated fast water, such as at the mouths of some Mississippi River tributaries. Its eyes are small,

*The common mudpuppy is the host for the larva of a freshwater mussel called the salamander mussel, *Simpsonaias ambigua*. This is unique, because all other known hosts for mussels are fish.*

lidless and don't bulge out. Each foot has four toes.

Unlike other salamanders, mudpuppies are neotenic, which means that mature adults are totally aquatic, retaining their larval characteristics, including gills. While larvae of most salamander species hatch in the water and have gills for only a few weeks until they develop into adults and move onto the land, mudpuppies live permanently in water and never metamorphose into a terrestrial form. Their lungs are used mostly for depth regulation instead of breathing.

Mudpuppies are mainly nocturnal, but their behavior changes with their habitat. Mudpuppies that live in slow, murky water with a muddy bottom or lots of vegetation are often active all day, since they aren't exposed to predators. Mudpuppies that live in clear streams hide underneath large flat rocks or logs by day and are active at night.

Mudpuppies use two forms of locomotion — they swim quite well,

holding their legs against their sides and swimming with an undulating tail motion, but they usually just walk along the bottom. They forage mostly at night, searching for almost any animal that will fit in its mouth — usually crayfish and other crustaceans, aquatic insects and worms. The menu might also include mollusks, fish, fish eggs and other amphibians, including juvenile mudpuppies.

Although they are sometimes accused of eating sportfish young, mudpuppies do not affect fish populations, and in fact, are a food source for fish. They are also consumed by northern water snakes and great blue herons.

Breeding season is fall and early winter. During courtship, the male swims or crawls around the female and eventually deposits spermatophores, jelly-like blobs, each capped with a sperm packet. The female picks them up with her vent or cloacal lips and stores them inside her cloaca, the chamber for holding wastes or reproductive materials. In late spring or early summer, the eggs pass through the cloaca and are fertilized as they are laid. She nests in a hollowed-out area underneath a large flat rock, occasionally in riprap or underneath a log, with the opening on the downstream side, so it won't fill with silt. She attaches 18 to 190 eggs singly, so they hang from the underside of the rock or log. Then she guards her eggs until they hatch, in one to two months, depending on water temperature.

Hatchling mudpuppies are about an inch long but will grow to eight inches over the next four to six years before reaching maturity. Mudpuppy juveniles or larvae look similar to the adults, but have a yellowish stripe along each side of their back. They are secretive, hiding in the vegetation of shallow water to avoid predators, including adult mudpuppies.

A MUST-HAVE FOR MUSSELS

Along the Upper Mississippi River and eastward, the common mudpuppy is the host for the larva of a freshwater mussel called the salamander mussel, *Simpsonaias ambigua*. This is



Mudpuppy eggs hang from the underside of a rock.



A mudpuppy embryo will take several years to reach adulthood. This one is from an egg that was accidentally torn during removal from a rock.



A juvenile mudpuppy has two yellow stripes along its back.



You can see the small, compact gills on this mudpuppy living in a fast, clear stream.

unique, because all other known hosts for mussels are fish. Mussels begin life as larvae, called glochidia, that cannot swim and are just carried by the water or sink to the bottom. A glochidium has two valves, or halves, that are partly open and capable of

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clamping on to the gills of a host. The glochidium of the salamander mussel clamps onto the gills of the mudpuppy. There it forms a cyst and lives as a parasite for eight to 12 weeks, while it develops. When the cyst breaks, the little mussel sinks to the bottom and is on its own. The salamander mussel cannot survive as a species without the mudpuppy.

Your best bet to see a mudpuppy might be to catch one while fishing with live bait, and that includes ice

fishing, since mudpuppies are active all year. You might also try shining a flashlight into the shallows at night. Mudpuppies tend to move into shallower water at night to feed, and they are reportedly attracted to lights. Mudpuppies can also be found hiding underneath large, flat rocks that are in water one to three feet deep. They hide under rocks in deeper water too, but it's just not as handy to check them.

Like all amphibians, mudpuppies are very susceptible to water pollution and siltation, and have suffered the same kinds of limb deformities found in frogs in recent years. They are listed as threatened in Iowa.

The common mudpuppy is a harmless creature that is part of the ecology of the Mississippi River. Don't let it gross you out. Consider it a treat, if you see one. 🐾

Allen Blake Sheldon's photographs appear frequently in Big River. The last story he wrote was "Northern Water Snake, Cranky and Not-so-good Looking," September-October 2005.

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