

Mudpuppy (*Necturus maculosus*)

Appearance The mudpuppy is Minnesota's largest salamander species, with adults reaching lengths of 13 inches or more. Brown or grayish in color, the mudpuppy has spots peppered across its back and sides, and its underside is light gray or buff. Hatchlings and juveniles have a yellow stripe along each side. The mudpuppy has small eyes and a paddlelike tail, which it uses to propel itself during rapid swimming. The sides of the head are adorned with bushy, red gills, that are bright red and conspicuous when in heavily oxygenated water, but are smaller, more compressed, and darker colored when in low-oxygenated water. Tiger salamander larvae are often mistaken for mudpuppies because they have a similar body structure and external gills. The best distinguishing trait: Mudpuppies have four toes on each hind foot, and larval tiger salamanders have five. People often refer to mudpuppies as waterdogs or axolotls, but true waterdogs and axolotls are not found in Minnesota.

Range Mudpuppies are found primarily in the eastern United States. Their range extends from southeastern Manitoba and southern Quebec, to eastern Kansas, and to northern Mississippi, Alabama, and Georgia. In Minnesota, mudpuppies inhabit the Mississippi, St. Croix, Minnesota, and Red river drainages. Most recorded sightings have been on the state's eastern and western edges, except for a few records along the Minnesota River.

Habitat Minnesota's only fully aquatic salamander species, the mudpuppy lives in water during every stage of its life cycle. In eastern Minnesota they appear to prefer rivers with rocky or gravelly substrates. In western Minnesota they may be found in rivers as well as rocky lakes. Rocky structures provide refuge and nesting habitat. Mudpuppies breed in fall and winter. In spring and early summer, the female attaches up to 100 eggs to the underside of rocks, logs, or other underwater structures and guards the nest from predators. Mudpuppies may live 20 years or more.

Status This species is not protected in Minnesota, although it is a Species in Greatest Conservation Need and appears to be declining in many parts of its national range. It is also the only known host for the larval form of the rare salamander mussel (*Simpsoniconcha ambigua*), a Threatened Species in Minnesota. Major threats to mudpuppy populations include loss of habitat and damage to



habitat from siltation, dredging, damming, and pollution. Some chemicals introduced into waterways, particularly TFM used to kill invasive lampreys, are fatal to mudpuppies. Water and substrate quality are also important for mudpuppy prey: crayfish, small fish, earthworms, and aquatic invertebrates. Though not yet thoroughly studied, overharvesting for bait or biological supply companies may reduce some populations. Most reports of mudpuppies are typically generated from anglers in the fall, winter, and spring when this species feeds heavily. People who catch mudpuppies on hook and line will often kill them because of the erroneous belief that they are poisonous or venomous, or some anglers are simply unfamiliar with them. Mudpuppies, though extremely slimy, are neither poisonous nor venomous, and the hook can safely be removed as with fish. If the hook has been swallowed, it may be best to cut the line as far back into the mouth as possible before release. This species is relatively easy to detect in lakes using traps but seemingly difficult to capture in its eastern river and stream habitats using similar techniques. Therefore, any specimens caught in the state should be photographed before release and reported to the Department of Natural Resources to gain better knowledge of mudpuppy distribution and abundance in Minnesota. Reports may be sent via e-mail to: Krista.Larson@state.mn.us or call the report line at 651-259-5076.

Jeff LeClere, *animal survey specialist*
Minnesota County Biological Survey, Department of Natural Resources