

Four-Toed Salamander

(*Hemidactylium scutatum*)

Appearance Four-toed salamanders have four toes on each of their feet, while other terrestrial salamanders in Minnesota have five toes on their back feet. Four-toed salamanders average 5 to 10 centimeters (2 to 4 inches) long and have a red-brown base color with dark flecks on their sides. The adult has a white belly with black flecks. Unlike other Minnesota salamanders, this one can voluntarily detach its tail near a constriction at the base to escape when a predator harasses or attacks.

Range and Habitat Widely distributed across forested regions of the eastern United States, this species was first discovered in Minnesota in Itasca County in 1994. Since then it has been documented elsewhere in east-central Minnesota. Four-toed salamanders live in mature deciduous or mixed deciduous-coniferous forests interspersed with sphagnum seepages, vernal ponds, or other fish-free habitats. (Four-toed salamander larvae lack a defense mechanism against predatory fish.) The closed canopy of a mature forest provides a shaded, moist forest floor with organic soils and woody debris. Mature forests also encourage moss growth around pond margins for nesting sites. In Minnesota four-toed salamanders favor mature forests of glacial moraine landscapes, where such isolated wetlands are abundant.

Biology and Life History Four-toed salamanders eat small invertebrates, including adult insects and their larvae, spiders, snails, and worms. During late fall the salamanders congregate with other amphibians at overwintering sites. Then in April and May, gravid females migrate to nesting sites in wetlands. Egg clusters are often laid in sphagnum moss hummocks near open water. Females lay about 30 eggs and remain with the eggs for at least a few weeks. Larvae hatch in one to two months, wriggle free from the moss, and drop into the water. Larval development ranges from 21 to 42 days, after which juveniles emerge from the wetland. Juveniles remain near the wetland for two to three weeks and then disperse into the adjacent forest.

Status This species lives in small, isolated colonies, which are vulnerable to drastic habitat alterations. Their unique habitat requirements and limited dispersal capabilities put small, isolated populations at great risk of local elimination. In Minnesota, the greatest threat to this species is loss and degradation of upland forest habitat and wetlands.

Liz Harper, animal survey specialist
DNR Minnesota County Biological Survey



GARY MESZAROS,
DEMBINSKY PHOTO
ASSOCIATES



a closer look at **CRITICAL HABITAT**

The four-toed salamander occurs in four of the 25 ecological subsections highlighted in *Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife*; it was most frequently surveyed in the Mille Lacs Uplands. Glaciers left this landscape with lots of rolling moraines and depressions, which fill with water in spring to become seasonal wetlands—and provide excellent salamander habitat. To read more about the region and its conservation priorities, visit www.dnr.state.mn.us/cwcs/subsection_profiles.html.