



## The Salamander Mussel... a Species at Risk in Canada

COSEWIC Status - ENDANGERED May 2001, May 2011

SARA Status - ENDANGERED June 2003



*Simpsonaias ambigua*

Photo credit: Environment Canada

This species has been identified as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is listed under the federal *Species at Risk Act* (SARA) and was afforded protection under the act as of

June 2004. Additional protection is afforded through *Ontario's Endangered Species Act*, 2007. As required under the *Species at Risk Act*, a recovery strategy and an action plan have been developed for this species.

### General description

The Salamander Mussel (*Simpsonaias ambigua*), also known as the Mudpuppy Mussel, is one of Canada's 54 freshwater mussel species and is the only living member of the genus *Simpsonaias*. It is also the only freshwater mussel that uses a non-fish host. As the name suggests, this small mussel uses a salamander - the Mudpuppy (*Necturus maculosus*) - as its host. It has the following characteristics:

- shell is thin, fragile, oval-to-elliptical in shape, and considerably elongated;
- thicker at the front end than the back end;
- shell is rounded at both ends, while top and bottom edges are nearly parallel;
- the raised part at the top of the shell (beak) is slightly swollen and sculptured with four-to-five double-looped ridges;
- maximum shell length is about five cm;
- outside of shell is yellowish-tan to dark brown with no markings;
- inside of shell (nacre) is bluish-white, shiny on the back half and sometimes tinged with pink; and
- triangular teeth at the front edge of the hinge are small, low and rounded - one in each half of the shell.

Freshwater mussels are molluscs, soft-bodied animals without a skeleton (invertebrates), that live on the bottom of streams, rivers, lakes and ponds. They use a muscular foot to burrow and crawl and have a pair of hinged shells. Mussels are filter feeders — nature's water purifiers — and are food for other wildlife like fishes, otters, mink, muskrats and some birds. They are also among the most endangered creatures in the world.



## Distribution

In Canada, the Salamander Mussel was historically found in the Detroit, Sydenham and Thames rivers in Ontario. It is now restricted to a 50 km reach of the East Sydenham River, where it appears to be reproducing. This mussel, historically also found in 14 American states, has been lost from 60 per cent of formerly occupied rivers and streams in the United States.

## Habitat and life history

The Salamander Mussel is most often found burrowed in sand or silt under large, flat rocks in shallow areas with swift currents, although it can also be found in mud or on gravel bars. Habitat is dependent on areas that meet nesting and sheltering requirements of its larval host, the Mudpuppy salamander. Here, the glochidia (the mussel's larvae) are released and infest the gills of the Mudpuppy. When the glochidia have transformed into juvenile mussels, they are likely released into the hiding place of the Mudpuppy, creating large clusters of these mussels in one area. It is believed that spawning occurs in late summer and the glochidia are released the following spring or summer. Adults are essentially sessile, and may move only a few metres through the substrate.

## Diet

Like all species of freshwater mussels, the Salamander Mussel filters its food from the water. Bacteria and algae are its primary food sources.

## Threats

Declining habitat quality from intense agriculture, urban development and pollution continue to threaten this mussel. The continued existence of this species in Canada may also depend on the status of its salamander host, the Mudpuppy, which is intolerant of siltation and could be threatened by increasing sediment loads from agricultural activities in the Sydenham River watershed. It is also believed that this mussel was lost from the Detroit River, due to the impact of the invasive Zebra Mussel (*Dreissena polymorpha*). This species is difficult to find and may be under-surveyed.

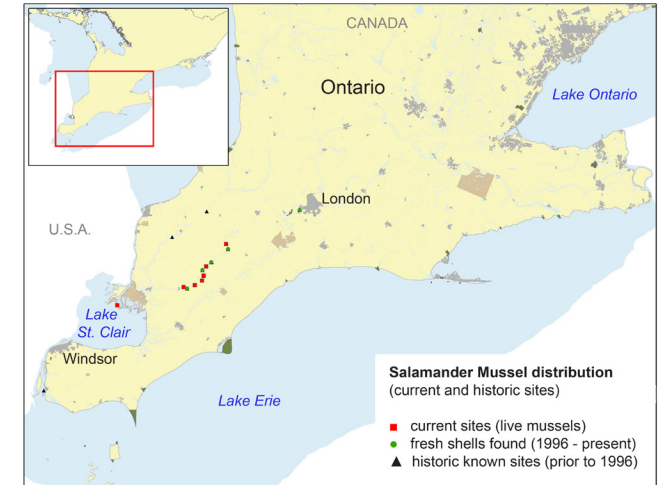


Images taken of Salamander Mussel in the Sydenham River system (T. Morris, Fisheries and Oceans Canada)

## Similar species

Cylindrical Papershell (*Anodontoides ferussacianus*) has a similar shell shape and beak sculpture to the Salamander Mussel, but lacks triangular teeth and grows considerably larger.

## Salamander Mussel distribution in Canada



**Text Sources:** COSEWIC Status Report on Mudpuppy Mussel (*Simpsonaias ambigua*), 2001; Metcalfe-Smith et al. Photo Field Guide to the Freshwater Mussels of Ontario, 2005; Fisheries and Oceans Canada. Action Plan for the Sydenham River in Canada [proposed], 2012; Fisheries and Oceans Canada. Recovery Strategy for Northern Riffleshell, Snuffbox, Round Pigtoe, Mudpuppy Mussel and Rayed Bean in Canada [proposed], 2012.

For more information, visit the SARA Registry at [www.SARAreistry.gc.ca](http://www.SARAreistry.gc.ca) or the website below.

*Cette publication est également disponible en français.*

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[www.aquaticspeciesatrisk.gc.ca](http://www.aquaticspeciesatrisk.gc.ca)

*Section 32 (1) of the Species at Risk Act (SARA) states that “no person shall kill, harm or harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.”*