

Aquatic Species at Risk



The Northern Riffleshell... a Species at Risk in Canada

COSEWIC Status - ENDANGERED May 2000, April 2010
SARA Status - ENDANGERED June 2003



General description

The Northern Riffleshell (*Epioblasma torulosa rangiana*) is one of Canada's 54 freshwater mussel species. It is a rare, colourful, small-to-medium sized mussel with the following features:

- outside of shell is brownish-yellow to yellowish-green with diffuse, fine green rays;
- inside of shell (nacre) is white;
- shell is noticeably thicker in the front end, thinner in the back end;
- males are square-shaped, females are more oval;
- bottom edge of the shell (ventral margin) is indented in males and broadly rounded in females;
- raised part at the top of the shell (beak) is finely double-looped, raised above the hinge line and somewhat hollow;
- triangular teeth are small, elongated teeth are fairly short and thick; and
- adults vary in length from 4.5 to 7.5 cm.

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 SARA, a recovery strategy and an action plan have been developed for this species.

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.



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Distribution

The Northern Riffleshell is one of the last remaining members of the near-extinct genus *Epioblasma*; its range has been reduced in North America by 95 per cent over the last century. In Canada, it was once found in western Lake Erie, Lake St. Clair and the Detroit, Thames, Ausable, and Sydenham rivers, but is now restricted to a 91 km reach of the East Sydenham River and a 44 km reach of the Ausable River. However, the East Sydenham River population is one of only three known reproducing populations in the world and is considered the healthiest population of the Northern Riffleshell in Canada.

Habitat and life history

The Northern Riffleshell lives in highly oxygenated riffle areas of rivers and streams on rocky and sandy bottoms (substrates) or firmly packed sand and fine-to-coarse gravel. It is a moderately long-lived, sexually dimorphic species (males and females look different from each other) with a lifespan of 15 years or more. Spawning likely occurs in late summer and the glochidia (larvae) are released the following spring. Like most other freshwater mussels, the glochidia are parasitic on fishes. In this case, the female Northern Riffleshell lures and grabs a host fish with her shell, releasing glochidia into the fish's mouth. The glochidia then attach to the host fish as they flow through its gills. Here they will remain until they reach their juvenile, free-living stage and drop off onto the substrate below. Adults are essentially sessile and may move only a few metres along the substrate. The known host fishes for this mussel in Canada are the Blackside Darter, Logperch, Iowa Darter, Johnny Darter, Rainbow Darter, Brook Stickleback and Mottled Sculpin.

Diet

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

Threats

Remaining Northern Riffleshell live in areas of intense municipal, industrial and agricultural development, making runoff pollution and siltation its major threats. Siltation, which can bury, smother and starve filter-feeding mussels, along with habitat disturbance and impoundment of dammed rivers, have likely already destroyed much of the habitat over the last century. More recently, the introduction and spread of the Zebra Mussel and Round Goby have devastated or eliminated Northern Riffleshell populations in the Great Lakes, though remaining East Sydenham and Ausable river populations are not yet threatened by this invasive species. Access to suitable host species may also threaten this species.

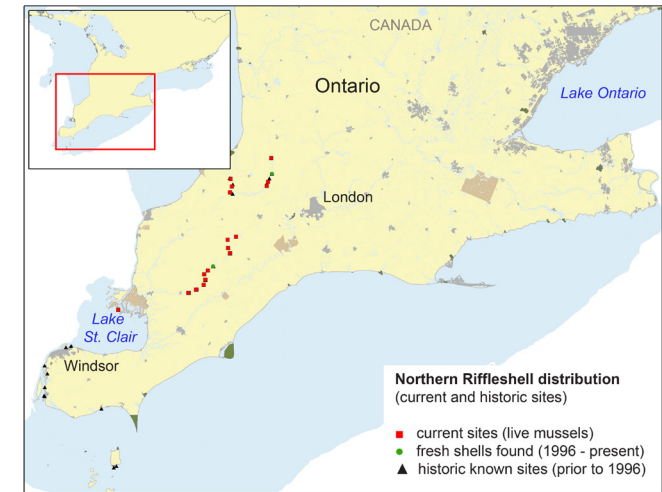


A collection of Northern Riffleshell (S. Staton, DFO)

Similar species

Does not closely resemble any other mussel species in Canada.

Northern Riffleshell distribution in Canada



Text Sources: COSEWIC Status Report on the Northern Riffleshell (*Epioblasma torulosa rangiana*) in Canada, 2010; 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; Metcalfe-Smith et al. Photo Field Guide to the Freshwater Mussels of Ontario, 2005; Staton, S.K. et al. 2000. Status of the Northern Riffleshell, *Epioblasma torulosa rangiana*, in Ontario and Canada. *Canadian Field Naturalist*. 114(2): 224-235.

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DFO/2013-1869

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Cat No. Fs22-4/16-1-2013E ISBN 978-1-100-21948-6

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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.”