



## The Kidneyshell... a Species at Risk in Canada

COSEWIC Status - ENDANGERED May 2003

SARA Status - ENDANGERED January 2005



*Ptychobranhus fasciolaris*  
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

January 2005. 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.

### General description

The Kidneyshell (*Ptychobranhus fasciolaris*) is one of Canada's 54 freshwater mussel species, and the only species of the genus *Ptychobranhus* found here. It is a medium- to large-sized mussel with the following features:

- unique long, elliptical shell that is yellowish- to yellow-green, yellow-brown or medium-brown in colour;
- wide, interrupted green rays that look like square spots;
- white or bluish-white inside of shell (nacre) that may be pinkish in young specimens;
- maximum length of about 12 cm;
- solid, heavy and compressed shell that is mostly smooth on the outside;
- rounded anterior (front) end and bluntly pointed posterior (back) end;
- old specimens are dark brown and rayless with a humped shape;
- heavy hinge teeth; and
- a noticeable groove on the inside of female shells, from the beak cavity extending along the underside, towards the posterior edge.

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 Kidneyshell was historically found in southwestern Ontario in lakes Erie and St. Clair and the Niagara, Sydenham, Thames, Detroit, Ausable and Grand rivers. It was always rare in the Great Lakes, and those populations are virtually gone due to the invasion of Zebra Mussels. The Kidneyshell is now limited to a 100 km reach of the Sydenham River, a 25 km reach of the Ausable River and a few remain in the St. Clair River delta and the Thames River. Overall, this species has been lost from about 70 percent of its historical range in Canada and is considered critically imperiled. The Kidneyshell was also historically known from 14 American states, and although it is considered secure overall in the United States, the Kidneyshell is considered extirpated to imperiled in seven states.

## Habitat and life history

The Kidneyshell lives mainly in small- to medium-sized rivers and streams. It prefers “riffles,” shallow areas with clear, swift-flowing water over coarse, firmly packed sand and gravel bottoms (substrates). It is usually found buried deep in these substrates and often near beds of water willow plants. Adult mussels are sedentary and spend their lives partially or completely buried in the substrate. The Kidneyshell is a moderately long-lived mussel with a lifespan of at least ten years. It is believed that spawning occurs in late summer and the glochidia (the mussel’s larvae) are released the following May to August. Like most other freshwater mussels, Kidneyshell glochidia are parasitic on fish. The female mussel releases mucous packages of glochidia disguised as food, which are ingested by the host fish. Once inside the mouth of the fish,

glochidia are released when the package ruptures. The glochidia then attach to their host fish as they flow through its gills. Here they remain until they reach their juvenile, free-living stage and drop off to the substrate below. The most likely host fishes for the Kidneyshell in Ontario are the Blackside Darter, Fantail Darter and Johnny Darter.

## Diet

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

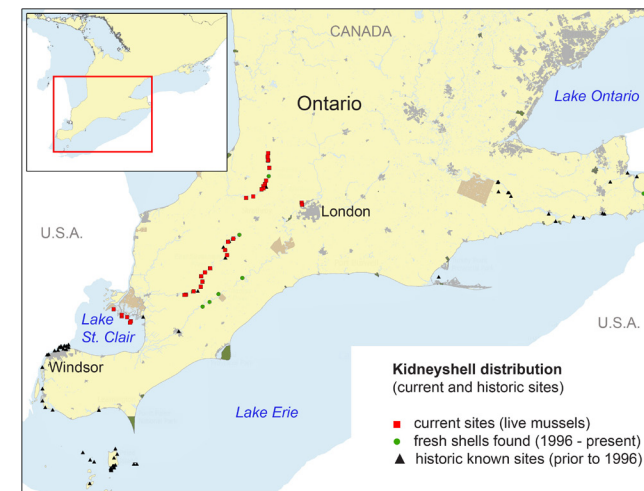
## Threats

Remaining Kidneyshell populations in southwestern Ontario are threatened by intensive agriculture and increasing urbanization, particularly heavy loadings of silt, sediments, nutrients and pollution that destroy mussel habitat, clog their gills and reduce water quality. The growing presence of invasive Zebra Mussels is also a concern, as hundreds-to-thousands of these small, non-native species attach to the hard surface of the Kidneyshells, ultimately killing them by interfering with their feeding, breathing and ability to move. Future threats may include the loss of its host fish species due to another invasive species - the Round Goby.

## Similar species

Old, rayless Kidneyshells may be mistaken for the Spike (*Elliptio dilatata*), which is more elongated with heavy beak sculpture and (commonly) purple nacre.

## Kidneyshell distribution in Canada



**Text Sources:** COSEWIC Status Report on Kidneyshell (*Ptychodranthus fasciolaris*), 2002; 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 the Round Hickorynut (*Obovaria subrotunda*) and the Kidneyshell (*Ptychodranthus fasciolaris*) 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.”*