

Aquatic Species at Risk



The **Mapleleaf** (Great Lakes - Western St. Lawrence populations)... a **Species at Risk** in Canada

COSEWIC Status - **THREATENED** April 2006

SARA Status - **THREATENED** March 2013



Quadrula quadrula
Photo credit: Environment Canada

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

March 2013. Additional protection is afforded through Ontario's *Endangered Species Act, 2007*. As required under SARA, a recovery strategy and an action plan will be developed for this species.

General description

The Mapleleaf (*Quadrula quadrula*) is a medium-sized freshwater mussel. This mussel is found in both Manitoba and Ontario, and is named for its somewhat square shape, which resembles a maple leaf. It has the following features:

- thick, square, yellowish-green (juvenile) or mostly brown (adult) shell;
- two rows of raised nodules form a v-shape along the outside of the shell;
- inside of the shell (nacre) is pearly white;
- raised part at the top of the shell (beak) is small and slightly raised above the hinge line;
- heavy hinge teeth;
- well-defined growth lines in young mussels, crowded and difficult-to-discern growth lines in adults; and
- adults can grow to 12 cm in length.

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 majority of Mapleleaf are found in the United States, with a range that includes Texas to Alabama, the Great Lakes drainage basin in Minnesota and Wisconsin to New York, and the Red River drainage basin in Minnesota and North Dakota.

In Canada, Mapleleaf populations are separated into two distinct groups, called “designated units” (DUs), based on genetic and geographic differences: the Saskatchewan-Nelson populations (DU1) and the Great Lakes-Western St. Lawrence populations (DU2). Saskatchewan-Nelson populations are located in Manitoba along the Red River and the lower reaches of its tributaries, the Assiniboine River and Lake Winnipeg. The Great Lakes-Western St. Lawrence populations are found in the Great Lakes-St. Lawrence watershed in Ontario and appear to be confined to the Sydenham, Ausable, Grand, Thames, Bayfield and Welland rivers, as well as the mouth of 20 Mile Creek at Lake Ontario in Jordan Harbour.

The Great Lakes-Western St. Lawrence populations have been lost from nearly 50 per cent of their historical range, including from Lakes Erie and St. Clair and the Detroit and Niagara rivers.

Habitat and life history

In Canada, the Mapleleaf is usually found in medium-to-large rivers with slow-to-moderate currents and firmly packed sand, coarse gravel or clay/mud bottoms (substrates). It is a long-lived species; mussels from the Manitoba populations have lived up to 64 years of age, but the average age is 22 years. The “brooding period” is short: spawning likely occurs in late spring and the larvae

(glochidia) are released by early summer. Like most other freshwater mussels, the Mapleleaf glochidia are parasitic on fish. In this case, the female Mapleleaf releases packets of glochidia that look similar to the food of their host fish. When the fish takes a bite, the glochidia are released into its mouth and flow through its gills. Here they will remain until they reach their juvenile, free-living stage and drop off onto the substrate below. Adult mussels are essentially sessile and may move only a few metres per year along the river or lake bottom. In Canada, the Channel Catfish (*Ictalurus punctatus*) is the most likely host fish.

Diet

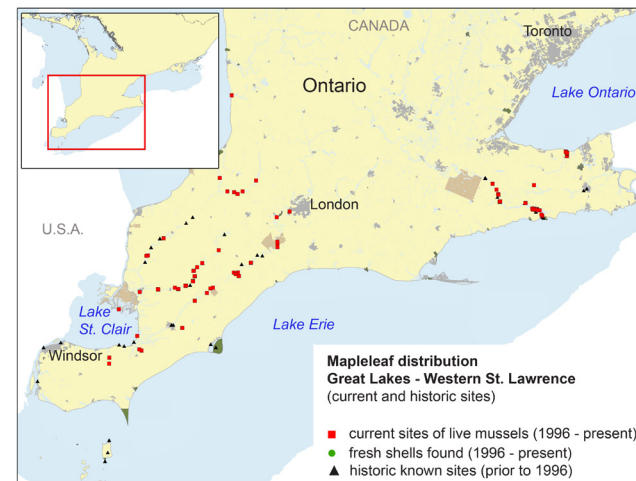
Like all species of freshwater mussels, the Mapleleaf filters its food from the water. Bacteria and algae are its primary food sources.

Threats

Mapleleaf populations in Canada are threatened by invasive species, habitat loss and degradation, and siltation (more sediment in the water), which can bury, smother and starve filter-feeding mussels.

In Ontario, the introduction of invasive Zebra and Quagga Mussels (*Dreissena polymorpha* and *Dreissena bugensis*) virtually eliminated the Mapleleaf in the lower Great Lakes and connecting channels by outcompeting the native mussels for habitat and food. Zebra Mussels are a potential future threat to remaining Ontario Mapleleaf populations found in watersheds with numerous impoundments from damming.

Mapleleaf mussel (Great Lakes - Western St. Lawrence populations) distribution in Canada



Similar species

The Mapleleaf most resembles the Pimpleback (*Quadrula pustulosa*); however, the Pimpleback is rounder and its nodules are more uniformly scattered along its shell.

Text Sources: COSEWIC assessment and status report on the Mapleleaf Mussel *Quadrula quadrula* (Saskatchewan-Nelson population and Great Lakes-Western St. Lawrence population), 2006; Metcalfe-Smith et al. Photo Field Guide to the Freshwater Mussels of Ontario, 2005.

For more information, visit the SARA Registry at www.SARAreistry.gc.ca or the website below.

Cette publication est également disponible en français.

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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.”