

Native lamprey vs Sea lamprey

Minnesota's five native lamprey species have been here for thousands of years.

- **Sea lamprey** were first discovered in Lake Superior in 1946. Sea lamprey only gained access to the upper Great Lakes when the Welland Canal was constructed between Lake Erie and Lake Ontario in 1829. The canal circumvented the largest natural blockade to fish migration in the Great Lakes, Niagara Falls.

- **Sea lamprey** adults are larger because they are adapted to feeding off of large ocean fish, whereas smaller native lamprey are adapted to smaller freshwater fish.

Sea lamprey adult = 12 to 24 inches
Silver lamprey = 9 to 14 inches
Chestnut lamprey = 8 to 10 inches

- **Sea lamprey** are found only in Lake Superior and its tributaries, whereas native lamprey species are found in water bodies throughout Minnesota.

- **Sea lamprey** are always parasitic as adults, only two of the five Minnesota native lamprey are parasitic.

- **Sea lamprey** cause more damage to fish populations because of their larger body size and vulnerability of Great Lakes fish species to wound infections after the parasitic lamprey releases.



Native lamprey
University of Minnesota, David Hansen



Sea lamprey
University of Minnesota, David Hansen

Cool facts

One of Minnesota's oldest citizens

Lamprey's lifestyle and body structure have remained almost the same for 250 million years! Native lamprey have lived in Minnesota since the last glaciers, 10,000 years ago.

Nest builders

Lamprey create nests in streambeds of cobble, gravel or coarse sand. Both the males and females participate by slowly moving material around with their suction cup mouths. When completed, the nest will be a clear, round depression a few inches across. Several lamprey may share a nest.

Transformers

The ammocoete stage may last up to seven years before its metamorphosis into an adult. The non-parasitic lamprey transform into adults during the autumn and stop feeding completely. When they change from a juvenile to adult, they develop a suction cup like mouth, develop better eyesight and reproductive parts. Spawning takes place shortly after this transformation.

The native parasitic lamprey transform from an ammocoete to an adult in the early parts of summer, they then begin their parasitic feeding on fish. Adult lamprey live for a year or two before spawning, and then die soon afterwards.

Look-a-likes?

Freshwater eels, native to the Mississippi and the eastern United States, look like lampreys, but they're not. Eels measure 2-3 feet with long, slender bodies. They are brown with a white underside. They have dorsal and anal fins that begin at the mid-section of the body and are continuous around the tail. Their mouth is large, with a typical fish jaw, unlike the jawless lamprey. Freshwater eels are not parasitic and won't attach to fish.

Native parasitic lamprey and fish populations

Since native lamprey and other fishes have co-existed for millions of years, they have adapted so there is little damage to overall fish populations. Minnesota has five species of native lamprey, of which only two have a parasitic adult phase.



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Native Minnesota Lamprey

THE MISUNDERSTOOD FISH



Lamprey life cycle

Native lamprey have a lifecycle that consists of an egg, ammocoete (larval), and adult stage. Breeding starts in late April thru mid-June. Fertilized eggs will hatch after 10-12 days into tiny ammocoetes, although most will never survive to adulthood. These ammocoetes drift along until they find a suitable patch of fine sand or silt. They bury themselves in the sediment, keeping their heads and mouths above and filter feed by producing strands of mucus and trapping food particles. Ammocoetes live like this for 3-7 years, growing larger until they are ready to transform into adults. As adults, only the Chestnut and Silver lamprey are parasitic on fish. The American, Northern, and Southern Brook lamprey all absorb their stomach and live off their body reserves.

They live from 8-20 months as adults, then they return to streams, lay their eggs and die.

Eggs are fertilized and hatch into ammocoetes after 10-12 days.

After 8-20 months, adults move upstream into riffles (fast water), spawn and then die.

After filter feeding for 3-7 years, they transform into adults and move into the stream, river, or lake.

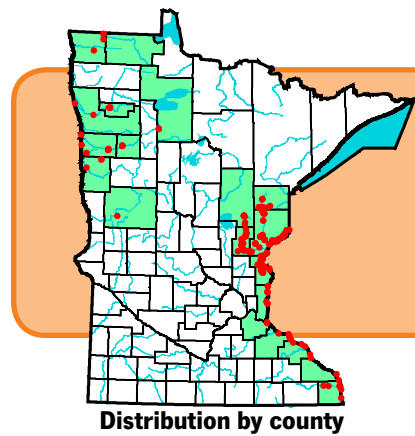
Adult Chestnut and Silver lampreys become parasites on fish; the Brook lampreys stop feeding completely.



Konrad P. Schmidt

Distribution of native lamprey

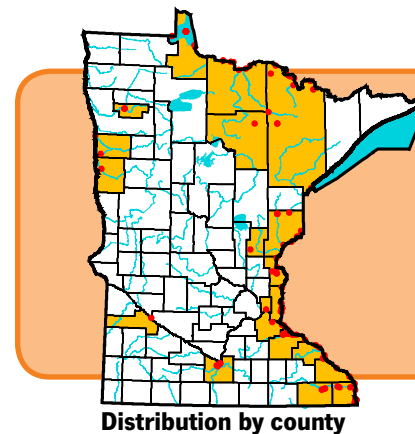
While Silver and Chestnut lamprey are found in Minnesota's three major watersheds (Mississippi River, Lake Superior, and Red River of the North), the Brook lamprey species have smaller, more localized populations. You are not likely to encounter these ancient fish species on your treks to Minnesota streams and rivers, but it is important to understand that they provide a valuable role in biodiversity and the ecosystem.



CHESTNUT LAMPREY

The Chestnut Lamprey is found in the large streams and small rivers of the Red, St. Croix, and lower Mississippi river systems.

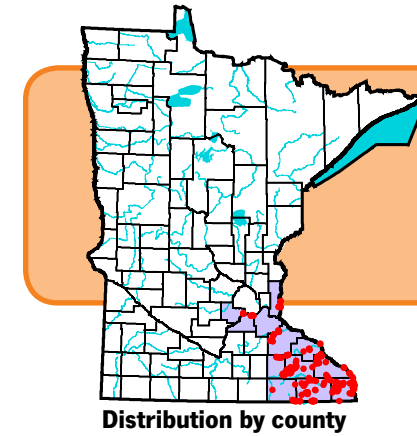
- Ichthyomyzon castaneus*
- Parasitic
 - 8 to 10 inches
 - Dark olive/gray above, yellowish below
 - Teeth adjacent to mouth mostly bicuspid (two points)



SILVER LAMPREY

The Silver Lamprey may be found in most of the major rivers of Minnesota and their tributaries. These include the Mississippi, Minnesota, St. Croix, Red and Rainy rivers. They have also been found in the Lake of the Woods area.

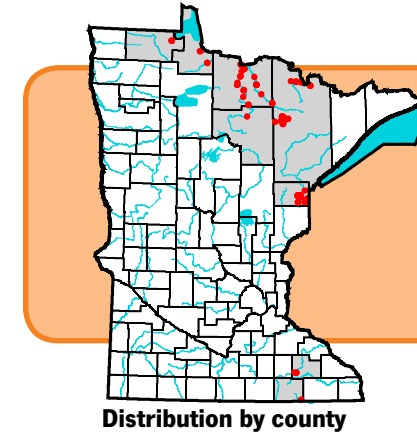
- Ichthyomyzon unicuspis*
- Parasitic-9 to 14 inches
 - Gray with silver coloring on bottom
 - Sucking disk larger than head
 - Teeth adjacent to mouth mostly unicuspid (one point)



AMERICAN BROOK LAMPREY

The American Brook Lamprey is found in the streams of the Southeastern corner of Minnesota

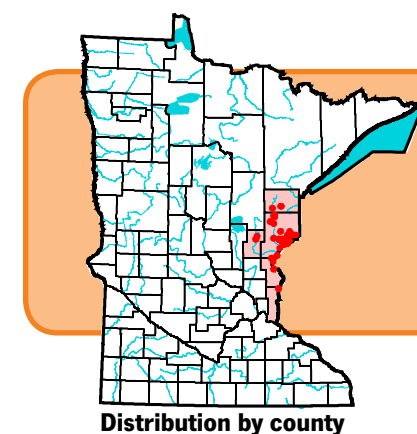
- Lampetra appendix*
- Non-parasitic
 - Dark spot on tail
 - Teeth, blunt and small
 - Brown on top, silver on stomach
 - 5 to 7 inches
 - Yellow tinted fins



NORTHERN BROOK LAMPREY

The Northern Brook Lamprey is found in streams of Carlton, St. Louis, Koochiching, Itasca, Lake of the Woods, Roseau, Olmstead and Mower counties.

- Ichthyomyzon fossor*
- Non-parasitic
 - Dark spot on tail
 - Teeth, blunt and small
 - 4 to 6 inches
 - Yellow tinted fins
 - Muddy brown



SOUTHERN BROOK LAMPREY

The Southern Brook Lamprey is found in streams of Carlton, Pine, Kanabec, Chisago, and Washington counties.

- Ichthyomyzon gagei*
- Non-parasitic
 - Dark spot on tail
 - Teeth, blunt and small
 - Brown on top, silver on stomach
 - 5 to 7 inches
 - Yellow tinted fins