



Common Name: OHIO LAMPREY

Scientific Name: *Ichthyomyzon bdellium* (Jordan)

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Petromyzontidae

Rarity Ranks: G3G4/S1S2

State Legal Status: Rare

Federal Legal Status: none

Description: Lampreys are elongated, cylindrical, primitive fishes that lack true jaws, paired fins, and anal fins. Larval lampreys or ammocoetes differ trenchantly from adults: they lack functional eyes, have a hood of loose skin around the mouth as opposed to a round sucking disc (i.e., the oral disc), and are passive filter-feeders on detritus, microorganisms, and algae. Transformation from the larval to adult stage differs among species. Some species transform into parasitic adults that feed on host fishes for an extended period before spawning, while non-parasitic species transform directly into a non-feeding and reproductive adult. The Ohio lamprey is a parasitic species that reaches about 305 mm (12 in) total length. The single dorsal fin may be slightly to deeply notched but is never divided. Ohio lampreys are gray to olive in color dorsally, light ventrally, and have sensory pores that are marked by small dark spots. The number of muscle bands (myomeres) between the last gill pore and the cloaca ranges 55-62 (usually 56-58). The teeth are well developed on the posterior field of the oral disc. The width of the oral disc is wider than the body and divides into total length about 14-16 times. When myomere counts cannot definitively confirm an identification, it may be necessary to examine microscopic structures within the oral disc. For example, in the Ohio lamprey, the transverse lingual lamina is strongly bilobed and bears 21-32 cusps. Consult Boschung and Mayden 2004 and references cited therein to properly evaluate this character.

Similar Species: The Ohio lamprey is very similar to the chestnut lamprey (*Ichthyomyzon castaneus*) and both of these parasitic species are known to occur in the Chickamauga Creek watershed in northwest Georgia. The chestnut lamprey differs in having 49-57 myomeres (usually 51-55) and 31-58 cusps on its linear to weakly bilobed transverse lingual lamina. The non-parasitic American brook lamprey (*Lampetra appendix*) is also known from the Chickamauga Creek watershed, but has 66 to 72

myomeres and a dorsal fin that is distinctly divided into two parts. The mountain brook lamprey (*Ichthyomyzon greelyi*) is not presently known from the Chickamauga Creek watershed in Georgia, but is of potential occurrence. Compared to the Ohio lamprey, it lacks pigmentation on its sensory pores and has a weakly toothed oral disc that is not as wide as the body.

Habitat: Preferred habitat includes small upland rivers and streams. The larval stage occupies habitats with soft substrates and organic debris, usually in areas with low current velocity. Adults may be found attached to prey fishes or sheltering among rocks or other structures in the stream.

Diet: Larval lampreys ("ammocoetes"): bacteria, detritus, decaying algae, and protozoans. Adults: parasitic upon other fishes of a wide variety and size range such as carp, black basses, catfish, suckers, and darters.

Life History: Ohio lampreys spend the first four years of life as larval ammocoetes living in soft, organically rich areas where they filter feed. These ammocoetes metamorphose into adults, changing external structures as well as internal anatomy. One of the most striking changes is the development of the oral disc and teeth, which are used in feeding. Adult Ohio lampreys are parasitic upon other fishes, attaching to the host using the sucking oral disc and rasping the surface to feed upon skin, blood and fluids. Immediately after transformation, parasitic lampreys do not feed for several months while a functional foregut develops (in non-parasitic lampreys, the gut is much reduced and is not functional after transformation into adults). Ohio lampreys will feed into their second year, becoming much larger and longer as a result of their feeding activities. In the spring or early summer they will mature, cease feeding, and move up into smaller tributaries to spawn and die. Spawning occurs in late spring in a pit-like nest.

Survey Recommendations: Ammocoetes are often encountered in areas with soft substrates and heavy accumulations of detritus. Adults can be captured by electrofishing, either as free-living individuals or by first capturing a host fish.

Range: Ohio lampreys are found in the Ohio River basin from extreme southwest New York south to northern Alabama. In Georgia, the Ohio lamprey has been collected in the Chickamauga Creek watershed. Check the [Fishes of Georgia Webpage](#) for a watershed-level distribution map.

Threats: Lampreys share several life history characteristics with salmon: they are migratory, require clean gravel spawning habitats, and die after spawning. Thus, lamprey are vulnerable to many of the same impacts that salmon are, including barriers to migration and sedimentation of spawning habitats. The Ohio lamprey also depends upon a diverse assemblage of host-fishes, many of which require healthy stream ecosystems in which to flourish. Stream degradation resulting from failure to employ Best Management Practices (BMPs) for forestry and agriculture, failure to control soil erosion from construction sites and bridge crossings, and increased stormwater runoff from developing urban and industrial areas are considered threats to the Ohio lamprey in Georgia.

Georgia Conservation Status: The Ohio lamprey is restricted to the Chickamauga Creek watershed in northwest Georgia, where it is known from less than 10 collections. Several of these collections are from the early to mid 2000s.

Conservation and Management Recommendations: Lampreys have received little respect because of the parasitic feeding habits of some species. It is important to realize that parasitic lampreys have co-existed with other fishes over a long evolutionary history. Impacts to wild fish populations are rare and only well documented when lampreys have been introduced outside of their native range (e.g., the sea lamprey *Petromyzon marinus* introduction into the Great Lakes). Conserving populations of the Ohio lamprey in Georgia depends on maintaining and restoring habitat and water quality in streams of the Chickamauga Creek system. It is essential to eliminate sediment runoff from land-disturbing activities (such as roadway and housing construction), maintain and restore forested buffers along stream banks, eliminate inputs of contaminants (such as fertilizers and pesticides), eliminate chronic discharges of industrial effluent and sewage, and maintain natural patterns of stream flow. Watershed clearing and urban development can lead to unnaturally flashy storm water runoff, which scours stream channels and results in lower baseflows. Efforts promoting the infiltration of storm water runoff into vegetated areas are an important element in protecting stream habitats for fishes and other aquatic organisms.

Selected References:

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Date Compiled or Updated:B. Freeman-Original Account: 1999, K. Owers, Jan, 2009: updated status and ranks, converted to new format. B. Albanese, Dec 2009: gen. update, similar species, and conservation status. Z. Abouhamdan, April 2016: updated link