U.S. Fish & Wildlife Service

Winged Mapleleaf Mussel

Oklahoma Ecological Service Field Office

Winged mapleleaf
Quadrula fragosa

Description

The winged mapleleaf occurred historically across thirteen, largely Midwestern U.S. states, but recently is known only from remnant populations in Minnesota, Wisconsin, Missouri, Oklahoma, and Arkansas. In Oklahoma, the species survives in the Little River in southeastern Oklahoma. Historical records exist from the Boggy and Kiamichi rivers, also in southeastern Oklahoma, and from the Neosho River, very near the Kansas/ Oklahoma border. Its thick shell reaches a maximum length of about 4 inches, is pentagonal in outline, and is moderately inflated. The outer shell layer is greenish-brown to dark brown, and small shells may exhibit faint rays. Two rows of bumps separated by a furrow run from the top of the shell to the lower edge. Additional distinctive details of the shell distinguish the winged mapleleaf from other freshwater mussel species.

Distribution

The winged mapleleaf lives in medium-sized to large rivers with high water quality. The species inhabits stream bottoms of sand, gravel, or rubble.

Life History

Adults feed by filtering algae, other protoctists, microscopic animals, bacteria, and detritus from their surroundings. As with most freshwater mussels, the life cycle includes sexual reproduction and a required parasitic stage. During spawning, males release sperm into the water column, some of which are taken into females of the species, which carry eggs in their gills. The resulting larvae (known as glochidia) are released from the females into the water column and must attach to a suitable fish host to continue development. Once metamorphosis is complete, juvenile mussels drop off the fish host and continue life in the stream bottom. Known fish hosts for this species include the channel catfish (*Ictalurus punctatus*) and blue catfish (*Ictalurus furcatus*).

Winged mapleleaf mussel. © D.E. Spooner

Conservation

The winged mapleleaf was federally listed as an endangered species on July 22, 1991. This species has experienced severe losses in range and abundance due to human degradation of its habitat. Specific factors involved in this degradation include construction and operation of large impoundments, and water quality degradation from point sources and nonpoint sources of pollution. Many of these factors are expected to continue and may increase, posing future threats to the winged mapleleaf.

Additional potential threats include impacts from invasive aquatic species such as the introduced zebra mussel (*Dreissena polymorpha*), accidental commercial harvest, and extreme conditions associated with human-caused climate change.

What You Can Do To Help

If you have property within a watershed inhabited by the winged mapleleaf, maintain an ample buffer of natural vegetation alongside any stream channels. Treat eroding roads, slopes, and other sources contributing sediments to streams. Reduce or eliminate use of lawn-care/agricultural chemicals, and install fencing to prevent livestock from entering streams. Take other steps to protect water quality, restore and protect natural watershed conditions, conserve instream flows, and prevent the spread of aquatic invasive species. Learn more about the winged mapleleaf, the threats to its existence, and its identified conservation needs by consulting the species' recovery plan.

References

U.S. Fish and Wildlife Service. 1997. *Winged Mapleleaf Mussel* (*Quadrula fragosa*) *Recovery Plan*. Fort Snelling, Minnesota.

U.S. Fish and Wildlife Service. 2009. *Spotlight Species Action Plan: winged Mapleleaf Quadrula fragosa*. Bloomington, Minnesota.

For Further Information

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