Topeka Shiner

Notropis topeka

Guidelines for Landowners Using Conservation Practices

Missouri Department of Conservation

Common name ▪ Topeka Shiner
Scientific name ▪ *Notropis topeka*
State status ▪ Endangered
Federal status ▪ Endangered

Ecology

Topeka shiners were historically widespread in western tributaries of the Mississippi River Basin from central Missouri to southern Minnesota, west to eastern South Dakota and western Kansas. Currently in northwest and central Missouri, they typically occupy permanent pools of small, clear, high-quality headwater streams draining upland areas. Typical stream substrates are gravel, rubble, sand, or bedrock often with a slight layer of silt. Many occupied streams become intermittent in the summer, but the pools are maintained by percolation of water from subterranean flow. Topeka shiners feed primarily on aquatic insects, but also on annelids, zooplankton, fish eggs, detritus, and plant material. Males defend small territories on the edge of sunfish nests, primarily green sunfish (*Lepomis cyanellus)* or orange-spotted sunfish (*L. humilis)* nests in Missouri. Spawning takes place from late May to mid-July. Adult Topeka shiners typically reach a length of 1.5 to 2 inches, with a maximum length of about 3 inches.

Reasons for Decline

A combination of factors have caused the dramatic decline of the Topeka shiner from over 80% of its former geographic range in Missouri and over 90% throughout its entire range. Threats to the Topeka shiner include reduced water quality and quantity due to excessive animal waste, fertilizer, and pesticide runoff, unrestricted livestock access to streams and riparian areas, siltation, stream channelization, wetland dewatering, and non-point source pollution. Habitat destruction and degradation can result from removal of streamside vegetation, improper and/or untimely sand and gravel removal, construction, and timber clearing operations. Stream straightening (channelization) is a major threat to Topeka shiner habitat because it alters water temperature and the flow regime, lowers the water table, and reduces aquatic habitat diversity. Introduced predatory fish pose an additional threat, and impoundments that alter stream hydrology can act as barriers to fish dispersal and serve as refuges for predatory fish, thus can be detrimental to Topeka shiner and other headwater fish populations.

Photo Credit: Missouri Department of Conservation

Recommendations

The Topeka shiner is an excellent indicator of water quality because of its sensitivity to habitat changes. Efforts should be made to ensure our waterways are healthy through protection and/or restoration of habitat for this and other aquatic species.

Avoid constructing stream crossings. If not possible, culverts and stream crossings should be constructed with the same bottom elevation as the existing streambed to avoid obstructing fish passage. Bank stabilization materials should consist only of rock, clean broken concrete or similar materials free of pollutants, silt and extraneous debris, including exposed rebar. Erosion and sediment controls should be implemented, maintained and monitored for the duration of the project.

Follow proper sand and gravel removal procedures outlined in the Missouri Instream Sand and Gravel

Removal Guidelines prepared by the Missouri Departments of Conservation and Natural Resources. Guidelines include the following: leave a minimum 20-foot buffer zone between the water line and the excavation area, do not mine within 20 feet of streamside vegetation, and do not alter stream channels. In addition, do not remove gravel during the Topeka shiner spawning season (May 15 to July 31).

Re-establish and maintain healthy riparian corridors at least 100-feet wide along streams used by Topeka shiners to reduce erosion and capture nutrient rich runoff. Exclude livestock with fences to allow the area to naturally re-vegetate. Discourage cattle from using streams that contain Topeka shiner habitat. Move watering areas into pastures and away from streams.

Refer to Management Recommendations for Construction Projects Affecting Missouri Streams and Rivers.

Consider the balance between adverse and beneficial practices when determining the overall effect of a conservation practice.

Beneficial Practices

- Limit livestock access to streams.
- Protection and restoration of riparian corridors along streams.
- Practices that control erosion and prevent the delivery of sediment to the aquatic system will prove beneficial to this species.
- Nutrient and pest management on adjacent agricultural fields that results in reduced opportunities for runoff.

Adverse Practices

- Sand and gravel mining beyond removal of the excess material on adjacent unconsolidated bars.
- Project activities that occur below the high bank between May 15 and July 31, the spawning period of this fish.
- Stream channelization.
- Unmanaged application of pesticides, animal waste or fertilizers that destroy or degrade habitats that support populations of this species.
- Uncontrolled livestock access to forested riparian corridors and streams.
- Constructing dams and other impoundment structures on streams that host the fish.
- Overlooking erosion and ignoring sediment control.
- Culverts, fords, and stream crossings that create a barrier to fish passage.
- Unnecessary vehicle and equipment stream crossing.
- Removing or degrading the riparian corridor near springs and along streams.

Information Contacts

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http://www.mdc.mo.gov/nathis/endangered/

Missouri Department of Natural Resources
Division of Environmental Quality
P.O. Box 176
Jefferson City, MO 65102-0176
Telephone: 800-361-4827 / 573-751-1300
http://www.dnr.mo.gov/env/index.html

U.S. Army Corps of Engineers
Regulatory Branch
700 Federal Building
601 E. 12th Street
Kansas City, MO 64106-2896
Telephone: 816-389-3990
http://www.nwk.usace.army.mil/

U.S. Fish and Wildlife Service
Ecological Services Field Office
101 Park DeVille Dr., Suite A
Columbia, MO 65203
Telephone: 573-234-2132
http://www.fws.gov/midwest/partners/missouri.html

Legal

The Missouri Department of Conservation prepared these guidelines for conservation practices with assistance from other state agencies, contractors, and others to provide guidance to those people who wish to voluntarily act to protect wildlife and habitat.

Compliance with these management guidelines is not required by the Missouri wildlife and forestry law or by any regulation of the Missouri Conservation Commission. Other federal, state or local laws may affect construction practices.

"State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, and specific requirements for impacts to such species are expressed in the Missouri Wildlife Code, rule 3 CSR 10-4.111.

Species listed under the Federal Endangered Species Act must be considered in projects receiving federal funds or requiring permits under the Clean Water Act, with compliance issues resolved in consultation with the U.S. Fish and Wildlife Service.