

Crystal Darter

Crystallaria asprella

Guidelines for Landowners Using Conservation Practices

Missouri Department of
Conservation

Common name ▪ Crystal Darter
Scientific name ▪ *Crystallaria asprella*
State status ▪ Endangered
Federal status ▪ None

Ecology

Crystal darters have a large historic range, stretching from river basins in West Virginia west to Missouri and from Minnesota south to the Gulf of Mexico. In east-central to southeastern Missouri, they inhabit open channels of large, clear streams and ditches with low to moderate gradients and long stretches of silt-free sand and small gravel substrate. They prefer streams with strong current and water depths of about 3 feet. The biology of this darter in Missouri is poorly known. Studies suggest that darters may bury themselves in the sand during the day and become active at night. Crystal darters forage for mainly aquatic insects, especially midges, mosquitoes, blackflies and caddisflies. Adults are commonly about 6.5 inches in length. They most likely breed late during late January to mid-April. The life expectancy of the crystal darter is estimated at least 2 years.

Reasons for Decline

Despite an historical range that included many rivers throughout east-central and southeastern Missouri, crystal darters never were considered common. Crystal darters have appeared vulnerable to siltation and other forms of pollution from urbanization, strip-mining, logging, and improper agricultural practices. Population declines have occurred as a result of habitat modification from activities such as channelization, dredging and impoundments. Crystal darters are particularly affected by these practices because they increase siltation, which affects how darters hunt for food.

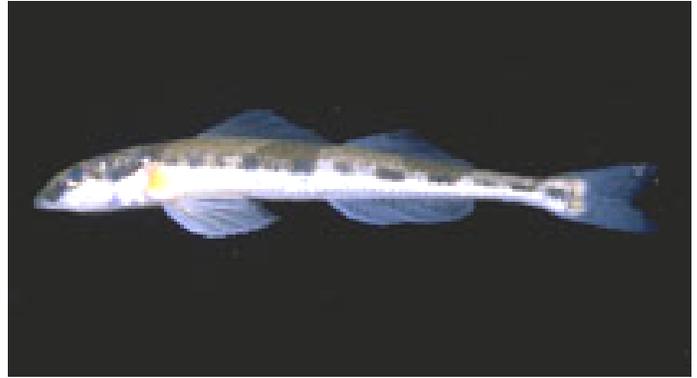


Photo Credit: Missouri Department of Conservation

Recommendations

As a species that prefers clean streams, crystal darters may act as indicators of a healthy ecosystem. Protecting and restoring streams for the crystal darter will also benefit other aquatic species. 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 unavoidable, culverts and crossings should be constructed with the same bottom elevation as the existing streambed to avoid restricting flow and 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 a 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 crystal darter spawning season (February 1 to April 15).

Limit clearing of vegetation, including standing and downed timber, to that which is absolutely necessary for construction purposes. Re-establish and maintain forested riparian corridors at least 100-

feet wide along streams used by crystal darters to reduce erosion and capture nutrient rich runoff. Discourage cattle from using streams and exclude livestock with fences to allow the area to naturally re-vegetate. 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.
- Nutrient and pest management on adjacent agricultural fields that results in reduced opportunities for contamination of runoff.
- Any practice that controls erosion and prevents the delivery of excess sediment to the aquatic system.

Adverse Practices

- Sand and gravel removal beyond the excess material on adjacent unconsolidated bars.
- Project activities that occur below the high bank between February 1 and April 15, the spawning period of this fish.
- Constructing dams and other impoundment structures.
- Improper erosion and sediment control.
- Culverts, fords, and crossings that create a barrier to fish passage or restrict flow.
- Unnecessary vehicle and equipment stream crossing.
- Removing or degrading the riparian corridor near springs and along streams.
- Unmanaged application of pesticides, animal waste or fertilizers.

Information Contacts

Missouri Department of Conservation
Policy Coordination Section
P.O. Box 180
2901 W. Truman Blvd
Jefferson City, MO 65102-0180
Telephone: 573-751-4115
<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. Environmental Protection Agency
Water, Wetlands, and Pesticides Division
901 North 5th Street
Kansas City, KS 66101
Telephone: 913-551-7003 / 800-223-0425
<http://www.epa.gov/region7/>

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.