

Diamond Darter

Crystallaria cincotta

The rivers of the southeast United States support the greatest diversity of freshwater fishes in North America. Unfortunately, one-quarter of this region's fish are considered imperiled. Conservation efforts are focused on the "Desperate Dozen," the 12 species most likely to become extinct. One of these imperiled fish is the diamond darter, so named for its sparkling nighttime reflections.

Life of a rare fish

The diamond darter is a member of the perch family, but differs from most other perch by their smaller size and more slender shape. Some darters, including the diamond darter, lack a swim bladder. This characteristic increases the density of the fish and allows it to remain near the river bottom with little effort.

Diamond darters are translucent with silvery sides and a white belly. They are yellow-tan on the back, with four wide olive-colored saddle patterns on the body, and have a dark blotch on the snout below the eyes. Adults reach 3 to 5 inches. This species is found in large warm-water rivers with very clear water and extensive sand and gravel bars free of mud and silt. Diamond darters are crepuscular, meaning they are most active at dusk and dawn. They will lie on the river bottom looking for bottom-dwelling invertebrates. To hide from predators during the day, they bury themselves in the sand, leaving only their eyes protruding. They may use this same buried position to ambush prey.

Due to its rarity, little is known about the life of diamond darters, but with current research on this species in captivity, biologists are beginning to learn more about them. Recently, scientists learned that females lay eggs from late March through May,



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Stuart Welsh/USGS

and young are born shortly afterwards. This is important information that field biologists can use to help monitor the species. More information about the diamond darter is inferred from what is known about the closely related crystal darter, *Crystallaria asprella*. For example, based on the feeding habits of the crystal darter, biologists believe that the diamond darter also feeds primarily on stream bottom-dwelling invertebrates, such as mayfly larvae and other aquatic insects.

Going, going, nearly gone

Years ago, the diamond darter lived throughout the Ohio River basin in Kentucky, Ohio, Tennessee and West Virginia before the construction of dams. But, after years of changes to rivers by dams and river channeling, the diamond darter is extremely rare today.

The widespread loss of this darter has been caused by impoundment of rivers from dams, siltation of the river bottom habitat and poor water quality. Large dams, changes to the river channel and flow, and soil erosion from urban and rural sources all contribute too much fine sediment entering the river and sinking into the riverbed. Fine sediments in the river bottom fill the spaces between the sand and gravel that the diamond darter needs for protection and to find prey and make nests.

The only diamond darter population known to exist is found in the Elk River of West Virginia. The Elk River is one of the most ecologically diverse in the state, supporting over 100 fish species and 30 mussel species, but many threats loom for the remaining diamond darters. Coal mining, oil and gas drilling, timber harvesting, all-terrain vehicles, improper sewage treatment, and stream bank erosion all occur in the Elk River watershed. Together, these activities compound the amount and type of pollutants flowing into the river, reducing the water quality and degrading the habitat needed by diamond darters.

Why care about the loss of one species?

Endangered species are indicators of the health of our environment. The loss of these plants and animals is a sign that the quality of our environment – air, land, and water – is declining. Gradual declines in freshwater fish populations, such as the declining diamond darter, and sudden fish kills are reliable indicators of water pollution problems. If left untreated, humans will eventually feel the effects as we breathe polluted air, lose valuable topsoil to erosion, or get sick from swimming in polluted water and eating contaminated fish.

Ways you can help protect the diamond darter

- Establish and maintain forested stream-side buffers to reduce and stop erosion.
- Take measures to control erosion and storm water during and after land clearing and soil disturbing activities. Excess soil in our streams from erosion is one today's greatest water pollution problems.
- Be careful using and disposing of fertilizers, pesticides and other chemicals. Remember, what you put on your land or pour down the drain may eventually wind up in nearby water.
- Avoid crossing streams in all-terrain vehicles.
- Support local, state and national clean water legislation.
- Report illegal dumping activities, erosion and sedimentation problems. These activities affect the quality of our water, for drinking, fishing and swimming.
- Participate in the protection of our remaining wild lands and the restoration of damaged ecosystems.

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