Notropis photogenis Cope — Silver Shiner

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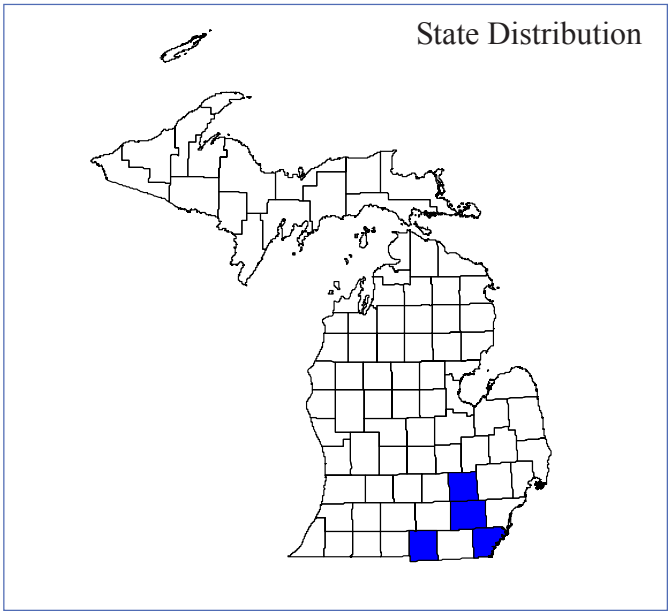

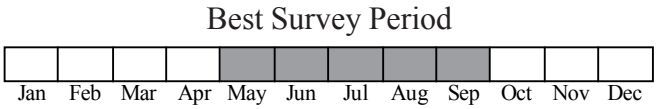

Status: State endangered

Global and state rank: G5/S1

Family: Cyprinidae (Minnows)

Total range: The silver shiner occurs commonly in most of the Ohio River basin, south to northern Georgia in the Tennessee River drainage. To the north, the silver shiner occurs rarely in Lake St. Clair, Lake Erie, and Lake Ontario tributaries in the United States and Canada. This species is present in the lower Wabash, lower Cumberland, and most of the lower Tennessee River drainage as well as the western lowlands of the Ohio River (Baldwin 1988, Page and Burr 1991). While it is common and secure in the center of its range (Ohio, Indiana, Pennsylvania, West Virginia, Virginia, Kentucky, Tennessee and North Carolina), the silver shiner is rare and imperiled at the edge of its range (Ontario, New York, Michigan, Alabama, and Georgia) (NatureServe).

State distribution: The silver shiner is locally abundant in midsize rivers in southeastern Michigan. It is currently known from two sites in Hillsdale County, in the St. Joseph River, as well as two sites in Washtenaw County in the Raisin River. The populations in the St. Joseph and Raisin Rivers are currently stable, with evidence of reproduction. Historically, the silver shiner was found in Washtenaw, Monroe and Livingston Counties, in the Saline, Raisin and Huron Rivers, and Ore Lake.

Recognition: The silver shiner is a slender minnow with large eyes. Adults are large, averaging three to four inches. The body is silvery, with some blue or green iridescence and a wide black lateral band. The snout is long, and two black crescents are present between the nostrils. The silver shiner is most often confused with the emerald shiner (*Notropis atherinoides*) and the rosyface shiner (*Notropis rubellus*). In the silver shiner, the dorsal fin is almost directly above the pelvic fin, unlike the emerald and rosyface shiners, where the front of the dorsal fin is markedly behind the pelvic fin insertion (Trautman 1981, Baldwin 1988, Evers 1994).

Best survey time/phenology: The best time to survey for the silver shiner is in the late spring, summer or early fall months during periods of low rainfall to coincide with low water levels and low turbidity.

Habitat: The silver shiner is found in medium to large streams with moderate to high gradients (Trautman 1981). This species is usually found in deeper water (about 110 cm deep), commonly in pools or eddies immediately below riffles (Baldwin 1983). The

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preferred substrate is disputed; silver shiners have been documented to prefer gravel and boulder (Gruchy et al. 1973, Trautman 1981), pebble and cobble (Parker and McKee 1980), and sand, mud and clay substrates (Baldwin 1983). However, it is agreed that this species avoids areas with heavy vegetation and siltation. Dissolved oxygen, pH, and conductivity were variable in areas where this species has been found, and there appears to be no correlation between these properties and the presence of the silver shiner (Baldwin 1988). In Michigan, the silver shiner has been found in areas with wooded banks and a strong current (Evers 1994).

Biology: Silver shiners usually occur in schools of mixed size classes (Trautman 1981). Growth of silver shiners is rapid, particularly during their first year. The fish are sexually mature at age two, and most reach a maximum age of three (Baldwin 1988).
Reproduction in silver shiners is not well documented. Based on the presence of ripe and spent fish, they are known to spawn in June in Ontario, although the actual spawning behavior has not been observed (Parker and McKee 1984). The fish may move into different habitats to spawn (Parker and McKee 1980, Baldwin 1983).
The silver shiner is primarily a surface feeder, but will take prey from the mid-water as well. Most of the prey items present in gut samples were aquatic insects, many of which were adult Diptera (True Flies) (Parker and McKee 1980, Baldwin 1988). Additionally, silver shiners have been reported to leap into the air to capture flying insects (Trautman 1981).

Conservation/management: While not widespread in Michigan, the populations of the silver shiner here appear to be stable. The silver shiner can tolerate a limited amount of human impact and it appears to be relatively tolerant to poor water quality. In order to protect Michigan's silver shiner populations, human-induced habitat changes need to be limited. In particular, damming and channelizing rivers may negatively affect silver shiner populations due to relatively restricted stream gradient preferences (McKee and Parker 1982).

Research needs: While several studies have been completed on the life history and ecology of the silver shiner, habitat preferences and spawning behavior are still poorly understood. Additionally, suitable Michigan rivers need to be surveyed to further define the range of the species in the state.

Selected references:

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Abstract citation:

Carman, S.M. 2001. Special animal abstract for *Notropis photogenis* (silver shiner). Michigan Natural Features Inventory. Lansing, MI. 3 pp.

Funding for abstract provided by Michigan Department of Natural Resources-Forest Management Division and Wildlife Division.

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