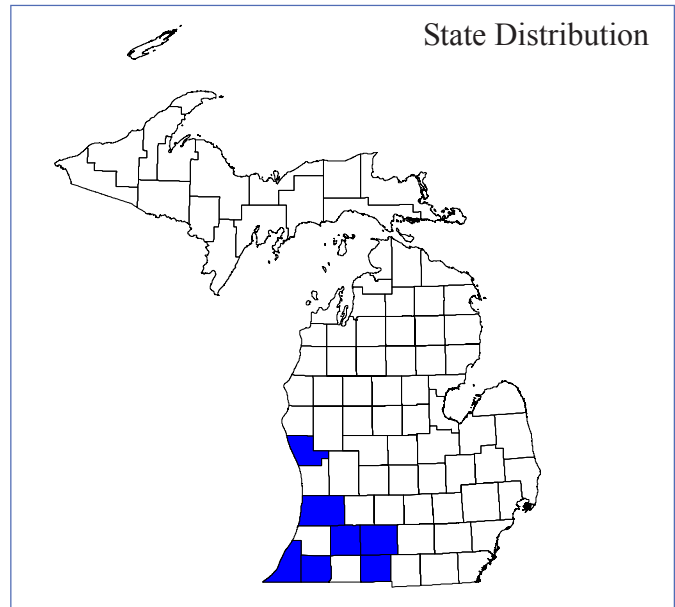


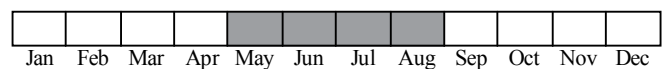


Above: courtesy of WhoZoo (<http://whozoo.org>).

Below: courtesy of NOAA National Estuarine Research Reserve Collection, # nerr0231.



Best Survey Period



Status: State special concern

Global and state rank: G5/S2S3

Family: Lepisosteidae (Gars)

Total range: The spotted gar is found in North America from southern Ontario to the Gulf Coast. The southern Lake Michigan basin, Lake Erie basin and southern Lake Huron basin comprise the most northern extent of its distribution. The spotted gar is more common in the Mississippi River basin from southern Minnesota to Alabama and western Florida (Page and Burr 1991, Scott and Crossman 1973).

The spotted gar is globally ranked as a G5 species and is considered secure (S5) or apparently secure (S4) in much of its range, particularly in the south (TX, LA, MS, AL, TN, MO, OK, AR, IN, KY). On the margins of its distribution, the spotted gar is less common. In Ontario, Michigan and Illinois, the spotted gar is considered to be imperiled (S2) and in New York, Pennsylvania, Ohio, Georgia, and Kansas, it is considered to be critically imperiled (S1). In New Mexico, the spotted gar is presumed extirpated (SX) and is currently unranked (S?) in Florida (NatureServe).

State distribution: The spotted gar is found in the southwestern corner of Michigan in the Lake Michigan basin. Prior to 1980, the spotted gar was found in Mona Lake in Muskegon County, Long Lake in Kalamazoo County, Duck Lake in Calhoun County, Shavehead Lake in Cass County, and Morrison Lake, North Lake, Loon Lake, and South Lake in Branch County. Recently, the spotted gar has only been found in the Kalamazoo River in Allegan County and the St. Joseph River in Berrien County. Spotted gar have also be reported in Van Buren County in Scott Lake, although this record has not been confirmed.

Recognition: Gars are a group of primitive fish that are easily recognized by their slender, long bodies, with long beak mouths and many prominent teeth. Gars have non-overlapping ganoid scales. Their bodies are bony and hard, and the dorsal and anal fins are opposite each other near the tail (Pflieger 1975, Page and Burr 1991).

As the name suggests, the spotted gar has many dark spots on its body, head and fins. The body is a deep olive-green to brown color above, and yellowish or whitish below. Juvenile spotted gars have stripes along the sides of the body. The snout is moderately long, with the upper jaw longer than the rest of the head. There are 17-20 scales along the diagonal row from the



scale at the front of the anal fin to the scale on the midline of the back, and 54-58 scales in the lateral line. Adults are generally 16-36 inches long and weigh 1 to 5 pounds, although a specimen has been caught that was 44 inches long and weighed 6 pounds. Females tend to be larger than males (Page and Burr 1991, Trautman 1981, Pflieger 1975, Scott and Crossman 1973).

In Michigan, the spotted gar may be confused with the longnose gar (*Lepisosteus osseus*), which has a longer snout and lacks spots.

Best survey time/phenology: The spotted gar is best surveyed during the late spring, summer and early fall months during periods of low rainfall and concomitant low water and low turbidity. The spotted gar feeds most actively in the morning, and may be most detectable during this time (Scott and Crossman 1973).

Habitat: The spotted gar requires clear, quiet water with abundant aquatic vegetation. It occurs in backwater areas of rivers, lakes and wetlands. Like other gar species, it is tolerant of warm water with low dissolved oxygen levels. They spawn in shallow, warm water. The spotted gar is also known to enter brackish water (Pflieger 1975, Trautman 1981, Page and Burr 1991).

Biology: Gars are often seen basking just below the surface of the water in calm, weedy areas. They can tolerate low dissolved oxygen levels because of a curious behavior they exhibit called “breaking”. At the surface of the water, they open and close their jaws, taking air in through their mouths. This enables them to exchange the air in their swim bladder, which is directly connected to their throat, for fresh air. Because their swim bladders are inundated with blood vessels, they function very similarly to the lungs of air-breathing animals, and allow gars to live in habitats with low levels of oxygen.

The spotted gar typically spawns in late spring or early summer (Smith 1979). Eggs hatch within a week, and larvae cling to aquatic plants. Growth is rapid in the first year of life, with young spotted gar reaching a length of 10 inches after the first year (Pflieger 1975). Males are sexually mature in 2-3 years, and females in the 3rd or 4th year (Campbell 1994).

The spotted gar eats small crustaceans as a juvenile, but its diet quickly changes to fish as it matures. Gar are stalkers, slowly following behind prey, until they rapidly strike at the prey from the side. Gars initially grip the prey with their sharp teeth in a sideways fashion. After the prey ceases to struggle, the gar turns it in the jaw and swallows the prey headfirst (Pflieger 1975).

Spotted gar are often considered an “obnoxious” fish, because they may compete with sport fish for prey fish (Scott and Crossman 1973). Anglers do generally not seek the spotted gar.

Conservation/management: The spotted gar requires clear vegetated water. Habitats such as this are rapidly disappearing in its range. Siltation, dredging, filling and harbor improvements negatively impact this species. In Ohio, spotted gar have been observed decreasing in numbers or even completely disappearing from areas that had a loss in aquatic vegetation (Trautman 1981). In order to protect this species, it is essential to protect the habitat of the spotted gar, especially quiet, clear waters with submerged vegetation.

Research Needs: The distribution of the spotted gar in Michigan needs to be definitively assessed. Most records for the spotted gar are over 20 years old and need to be revisited. Additionally, while the habitat of the spotted gar (quiet, clear vegetated water) is home to several special fish, it is often overlooked during surveys. Targeted surveys need to be completed to better understand how to protect viable habitat and the associate species.

Related Abstracts: Pugnose Minnow (*Opsopoeodus emiliae*).

Selected references:

- NatureServe: An online encyclopedia of life [web application]. 2001. Version 1.6. Arlington, Virginia, USA: Association for Biodiversity Information. Available: <http://www.natureserve.org/explorer>. (Accessed: February 19, 2002)
- Page, L.M. and B.M. Burr. 1991. A field guide to freshwater fishes: North America north of Mexico. Houghton Mifflin Company, Boston, Massachusetts. 432 pp.



Smith, P.W. 1979. Fishes of Illinois. University of Illinois Press, Champaign, Illinois. 314 pp.

Trautman, M.B. 1981. The fishes of Ohio. Second Edition. Ohio State University Press, Columbus, Ohio. 782 pages.

Abstract citation: Carman, S.M. 2002. Special Animal Abstract for *Lepisosteus oculatus* (Spotted Gar). Michigan Natural Features Inventory. Lansing, MI. 3 pp.

Copyright 2002 MSU Board of Trustees.

MSU Extension is an affirmative-action, equal opportunity organization.

Funding for this abstract provided by Michigan Department of Natural Resources - Forest, Mineral, and Fire Management Division.

