

Warpaint Shiner

Luxilus coccogenis

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DESCRIPTION

Taxonomy and Basic Description

The Warpaint Shiner is a member of the cyprinid family (minnows). Fishes within the genus *Luxilus* are characterized by deep, strongly compressed bodies and large lateral scales which are much higher than wide (Jenkins and Burkhead 1994; Rohde et al. 1994). Warpaint Shiners range in length from 76 to 151 mm (3.0 to 5.9 in.). This attractive species displays a dark submarginal band in the dorsal and caudal fins and a prominent red slash on the opercle behind the eye. Breeding males display red on the upper lip and snout (Rohde et al. 1994).

Status

Globally, this species is considered to be currently stable (Warren et al. 2000) and secure (G5) but is not ranked in South Carolina (SNR) (NatureServe 2013). The Warpaint Shiner is listed as a species of concern in South Carolina.

POPULATION SIZE AND DISTRIBUTION

The upper Savannah River contains several fish species that are typically found in the Tennessee drainage, and not on the Atlantic Slope. The presence of the Warpaint Shiner in the Savannah River of the Southern Atlantic Slope is likely due to a stream capture from the Tennessee River (Ross 1970). Within South Carolina, the Warpaint Shiner is restricted to the Chattooga and Seneca River system in the upper Savannah River drainage. Outside of South Carolina, the Warpaint Shiner occurs in the upper Tennessee River drainage of western Virginia, western North Carolina, eastern and southern Tennessee, and northern Georgia. The Warpaint Shiner also occurs in northern Alabama.

Information on population size and status is limited for this species. Based on South Carolina Stream Assessment data (2006-2011), the mean statewide density estimate for Warpaint Shiner in wadeable streams was 0.002 (95% confidence interval: 0.00–0.005) per 100 m².

HABITAT OR NATURAL COMMUNITY REQUIREMENTS

The Warpaint Shiner inhabits clear coolwater streams and rivers with moderate to high gradients (Jenkins and Burkhead 1994) and gravel and rubble substrates. This species is generally found in the slower moving areas associated with pools, slow runs, and riffle margins.

CHALLENGES

Although the Warpaint Shiner is currently stable throughout the majority of its range, its limited distribution in South Carolina makes it vulnerable to imperilment within the State. Because of its limited distribution within South Carolina, it is especially vulnerable to development within the Chattooga and Seneca River systems. The major challenges to this species are deforestation, loss of riparian cover, siltation, and impoundments.

CONSERVATION ACCOMPLISHMENTS

South Carolina Stream Assessment data have facilitated the calculation of standardized abundance (density) estimates for this species at multiple spatial strata including statewide, river basin, level-IV ecoregion, and “ecobasin” (ecoregion x river basin). For the first time, these estimates provide an objective measure of current population status that will serve as a baseline for following future population trends and gauging the effectiveness of conservation actions.

Educational materials have been developed in order to raise public awareness of nongame species and their ecological importance to the natural history of South Carolina’s aquatic habitats, including:

- The Reel Art program creates a topic for secondary school students and judges the artists’ submissions (e.g. a list of the Piedmont Fishes of SC to select from as subjects for drawing or painting).
- We compiled information and photographs for the development of nongame fish description web pages which are currently in development.
- We developed the Blackwater River Guide and interactive Powerpoint.
 - <http://www.dnr.sc.gov/education/pdf/BlackwaterInteractivePoster.pdf>
 - <http://www.dnr.sc.gov/education/pdf/BlackwaterRivEdGuide.pdf>
- We developed and printed the Fish Species of Concern Coloring Book (2009).
 - <http://www.dnr.sc.gov/aquaticed/pdf/SCFishesofConcernColoringBook.pdf>

CONSERVATION RECOMMENDATIONS

- Use South Carolina Stream Assessment decision-support GIS modeling tools to identify levels and spatial distributions of critical habitat factors to sustain the species in geographic areas of interest.
- Use South Carolina Stream Assessment decision-support GIS modeling tools to identify priority regions and watersheds at greatest risk of decline in stream integrity.
- Describe life history and habitat requirements of the Warpaint Shiner.
- Protect critical habitats from future development and further habitat degradation by following Best Management Practices and protecting and purchasing riparian areas.
- Promote land stewardship practices through educational programs both within critical habitats with healthy populations and other areas that contain available habitat.
- Encourage responsible land use planning.
- Consider this species’ needs when participating in the environmental permit review process.

- Continue to develop educational materials in order to raise public awareness of nongame species and their ecological importance to the natural history of South Carolina's aquatic habitats.
- Educate motor vehicle operators of the negative effects of crossing streams at multiple locations and using stream bottoms as trails.

MEASURES OF SUCCESS

Determining the distribution, life history, habitat needs, and Southeastern population structure and trends would represent a measure of success for this species. Methods that protect water quality are also likely to protect this species. In the event that more protective BMPs are implemented, population studies of this fish could assist in determining the effectiveness of those measures.

LITERATURE CITED

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