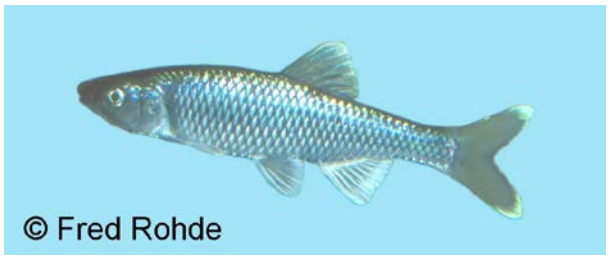
Satinfin Shiner

Cyprinella analostana



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DESCRIPTION

Taxonomy and Basic Description

The Satinfin Shiner is a member of the family Cyprinidae. Cyprinidae is the family of true minnows and, with about 2,000 species, is the largest family of fishes in the world (Jenkins and Burkhead 1994).

The Satinfin Shiner is in the genus *Cyprinella*, the second largest cyprinid genus in the Americas (Jenkins and Burkhead 1994). Fishes of the genus *Cyprinella* are characterized by large, vertical, diamond shaped scales and a dark blotch on the dorsal fin. The dorsal fin of the Satinfin Shiner exhibits black speckles on all membranes with a distinct black blotch on its rear half (Rohde et al. 1994). The anal fin of the species typically has 9 rays. Breeding males appear gray-blue with yellow fins (Rohde et al. 1994). Adults range in size from 47 to 110 mm (1.9 to 4.3 in.) (Rohde et al. 1994).

Status

The Satinfin Shiner is under review in South Carolina for classification of its status, but is currently not ranked (SNR) (NatureServe 2013). Across much of its range, it is considered to be secure (G5) (NatureServe 2013).

POPULATION SIZE AND DISTRIBUTION

The Satinfin Shiner is found on the Atlantic Slope from the Pee Dee River drainage in North and South Carolina, north to the lower Hudson River drainage and southern Lake Ontario drainage in New York (Page and Burr 1991). In South Carolina, the Satinfin Shiner is restricted to tributary streams of the upper Pee Dee River drainage in the Slate Belt and Sandhills Ecoregions (SCDNR, unpublished data). The most viable populations of Satinfin Shiner likely occur in Thompson Creek, Chesterfield County, SC. The Satinfin Shiner was not collected at any randomly selected wadeable stream sites in the South Carolina Stream Assessment (2006-2011).

The Satinfin Shiner is common across its range with a limited distribution in South Carolina, the southern-most extreme portion of the range. Conservation actions in South Carolina may have little impact on the overall status of these fishes. However, due to the limited habitat available for this species in South Carolina, and if it is to be maintained as part of South Carolina's fauna, then

it is essential that the habitat requirements for these fishes be better understood and actions taken to protect and preserve appropriate sites for the survival of this species.

HABITAT OR NATURAL COMMUNITY REQUIREMENTS

The Satinfin Shiner occupies pools and runs of creeks and small to medium weed-free rivers with substrate ranging from sand to gravel and rubble. Occasionally, this species is found in headwaters and tidal portions of some large rivers. Eggs are attached to branches, stumps and logs and may be deposited in cracks in rocks, in crevices under loose submerged bark, between exposed tree roots, and/or under flat rocks (NatureServe 2013).

CHALLENGES

This species is vulnerable in South Carolina due to its very limited distribution but is currently stable throughout much of its range. Challenges to this species are similar to those of other aquatic fauna and include point and non-point source pollution, deforestation and loss of riparian corridors, impoundment development, channelization and siltation from poor land use practices, and unplanned or poorly planned urban and suburban development. Because of its limited distribution, it is also vulnerable to habitat losses due to anthropogenic influences such as water withdrawals or environmental disturbances such as drought.

CONSERVATION ACCOMPLISHMENTS

South Carolina Stream Assessment (2006-2011) 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). These estimates, for the first time, 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 Satinfin Shiner.
- Survey Thompson Creek and surrounding areas in Chesterfield County to determine the status of the Satinfin Shiner as this stream likely houses the strongest populations of this species and may have been severely impacted by the drought of 2002. Protect these areas, once identified.
- Protect critical habitats from future development and further habitat degradation by following Best Management Practices (BMPs) and protecting and purchasing riparian areas.
- Promote land stewardship practices through educational programs both within critical habitats with healthy populations and in 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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