

## V-lip Redhorse

### *Moxostoma pappillosum*

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## DESCRIPTION

### Taxonomy and Basic Description

The V-lip Redhorse is a member of the family Catostomidae and belongs to the genus *Moxostoma*. Buth (1978) regarded the V-lip Redhorse to be the most primitive species in the subgenus *Moxostoma*. The V-lip Redhorse has been recently considered a sister species of the Silver Redhorse, *M. anisurum* (Jenkins and Burkhead 1994). Adult V-lip Redhorse range in length from 230 to 325 mm (9 to 13 in.) and have an elongate body with slender form. These fish have a V-shaped lower lip with a finely papillose lip surface. The dorsal fin is moderately concave and usually has 12 or 13 dorsal rays. The color of the back is tan-olive and often has a silver sheen. The sides are silver, gold, or brassy with dark scale bases. Faint red may be present at the edges of the caudal and anal fins. Paired fins are orange or pale red (Jenkins and Burkhead 1994).

### Status

The V-lip Redhorse is currently considered stable (Warren et al. 2000) and apparently secure (G4) (NatureServe 2013). Though it may be uncommon in certain areas like within South Carolina (SNR) (NatureServe 2013), it is not considered rare. However, there is some concern about the long-term outlook for the species due to declines and other factors (NatureServe 2004).

## POPULATION SIZE AND DISTRIBUTION

The V-lip Redhorse occurs on the Atlantic Slope from the Roanoke–Chowan drainage in Virginia to the Santee River drainage in South Carolina. In South Carolina, the species is restricted to the upper Broad River drainage, where it is rarely found (SCDNR unpublished data).

The V-lip Redhorse is apparently secure in Virginia and North Carolina. Based on South Carolina Stream Assessment data (2006-2011), the mean statewide density estimate for the V-lip Redhorse in wadeable streams was 0.0002 (95% confidence interval: 0.00005 – 0.0004) per 100 m<sup>2</sup>.

## HABITAT OR NATURAL COMMUNITY REQUIREMENTS

The V-lip Redhorse inhabits rocky runs and silty to firm-bottomed pools within warm, medium-sized streams to large rivers of moderate or gentle gradient (Jenkins and Burkhead 1994). The V-

lip Redhorse is a benthic feeder and has been observed feeding in slow current, gravel-bottomed areas (NatureServe 2004).

## CHALLENGES

The V-lip Redhorse has a very limited distribution in South Carolina; any habitat loss or catastrophic pollution event in the upper Broad River drainage could lead to the extirpation of the species from South Carolina. This species may experience impacts from exotic catfish species like Blue and Flathead Catfish that likely prey on juvenile and adult Redhorse (Guire et al. 1984; Bart et al. 1994); Buffalo also adversely affect this species through competition (W. Starnes, pers. comm.).

## 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). 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:
- 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 V-lip Redhorse.
- Identify critical habitats and areas with healthy populations of V-lip Redhorse, and protect these areas once identified.
- Investigate the existence of the V-lip Redhorse in the Pee Dee River.

- 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 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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