Triangle Floater

Alasmidonta undulata

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DESCRIPTION

Taxonomy and Basic Description

The shell of the triangle floater is subtriangular to ovate, solid and thicker at the anterior end than at the posterior. A posterior ridge is present and distinct. Strong ridges run parallel with the growth lines. The exterior shell surface is smooth and shiny, yellowish greenish with broad green or blackish rays, becoming black with age. The interior shell surface is white but includes salmon pink or red anteriorly and becomes iridescent posteriorly. Maximum shell length for this species is 75 mm (3 inches) (Bogan and Alderman 2004).

Some taxonomists have considered this species to be synonymous with *Alasmidonta triangulata*, recorded in Georgia, Alabama and Florida (NatureServe 2005).

Status

NatureServe (2005) currently identifies the triangle floater as apparently secure at the global level (G4), but in light of recent declines, that ranking may need to be re-evaluated. It is not currently ranked in South Carolina, but is ranked as critically imperiled (S1) in Georgia and imperiled (S2) in North Carolina. The triangle floater is declining rapidly for unknown reasons in other parts of its range, especially North Carolina and Virginia, even in very good quality habitat (Taxonomic Expertise Committee 2004).

POPULATION DISTRIBUTION AND SIZE

The range of the triangle floater extends from the St. Lawrence River basin in Ontario and Quebec to the Ogeechee basin in Florida (Bogan and Alderman 2004). Throughout its range it is found in a variety of habitat types from small creeks to large rivers, with sand, fine gravel, sandy mud, or silt as a substrate. In South Carolina, the triangle floater was found in Log Creek, a stream in the Savannah River drainage in Log Creek of Edgefield County (Taxonomic Expertise Committee 2004). It was also found in the Savannah River approximately in the late 1990's and at one site at the Savannah River Site in 1977. The triangle floater is always very rare when found in South Carolina; only one or two individuals are collected during each sampling event (Taxonomic Expertise Committee 2004). Bogan and Alderman (2004) identify the Santee-Cooper drainage as part of the triangle floater's historic range.

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

The triangle floater is only found on very stable substrates even though the substrate can include some silt (Taxonomic Expertise Committee 2004). Historically, it was reported to be common in sections of moderate flow in small rivers and headwater streams (Bogan and Alderman 2004). The fish hosts of the triangle floater are diverse (Bogan and Alderman 2004), so the fish community is not likely to limit its distribution.

CHALLENGES

Little is known about specific challenges to the triangle floater. It appears to be sensitive to sedimentation and bank stability, since it is restricted to sites with stable banks. Since it has also declined in areas with very good water quality and stable banks (Taxonomic Expertise Committee 2004), there are additional challenges that are not understood at this time.

CONSERVATION ACCOMPLISHMENTS

Arthur Bogan at the North Carolina State Museum of Natural Sciences and a graduate student are working on a genetic study to determine the taxonomic relationships of populations of the triangle floater across its range.

CONSERVATION RECCOMENDATIONS

- Conduct surveys in the Savannah River drainage to determine the presence and location of the triangle floater in South Carolina.
- Explore the need to determine special concern status for the triangle floater, based on survey results.
- Conduct genetic studies to clarify the relationship of the triangle floater with *Alasmidonta triangulata*.
- Protect critical habitats for the triangle floater 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 for the triangle floater.
- Encourage responsible land use planning.
- Consider species needs when participating in the environmental permit review process.
- Educate off-road motor vehicle operators of the negative affects of crossing streams at multiple locations and using stream bottoms as trails.

MEASURES OF SUCCESS

Completing an extensive survey of the Savannah River drainage and resolving the taxonomic status of the triangle floater will assist in developing appropriate management techniques for this species. The conservation of the triangle floater's habitat will be considered successful if populations persist where they have been previously recorded and increase in numbers.