Roanoke Slabshell

Elliptio roanokensis

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DESCRIPTION

Taxonomy and Basic Description

The posterior ridge of the Roanoke Slabshell varies from well-defined to uniformly round. The outer surface of the shell is smooth, except near shell margins, and is generally yellowish/reddish-brown. The color of the Roanoke Slabshell darkens with age; narrow greenish rays are often present but are less distinct in larger individuals. The inner surface of the shell is usually purple. The Roanoke Slabshell can grow to a length greater than 150 mm (6 inches) (Bogan and Alderman 2004, 2008).

Status

The Roanoke Slabshell is locally common in several sites in the Pee Dee, Savannah and Congaree Rivers. However, large die offs near hydroelectric dams during periods of low flow and low oxygen levels are a cause for concern (Taxonomic Expertise Committee 2004). NatureServe (2011) currently identifies the global ranking for this species as vulnerable (G3). The Roanoke Slabshell is a species of federal concern and is ranked as imperiled (S2) in South Carolina.

POPULATION SIZE AND DISTRIBUTION

The Roanoke Slabshell reportedly ranges from the Connecticut River in Massachusetts to the Savannah River in Georgia (Bogan and Alderman 2004, 2008). In South Carolina, it is found in the main stem of the Pee Dee River and in the Catawba, Congaree, and Savannah River drainages. It seems to have disappeared from many other rivers in the Southeast (Taxonomic Expertise Committee 2004).

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

The Roanoke Slabshell is found in large rivers but can occasionally be found in small creeks. The host fish for the species is unknown but is expected to be an anadromous fish. The Roanoke Slabshell is able to tolerate large variations in flow levels and higher water temperatures, making it able to survive in some locations near dams and hydroelectric plants. It has experienced large die-offs when the plants generate extremely low flows and cause levels of oxygen to drop (Taxonomic Expertise Committee 2004).

CHALLENGES

The Roanoke Slabshell tolerates some of the effects of damming operations. However, this species is vulnerable to drastic reduction in water levels. Dams also appear to be harmful to the Roanoke Slabshell by preventing the travel of fish hosts. Juveniles are rarely found above dams prohibiting fish passage, but often return to these areas following efforts to facilitate fish passage. Observations suggest that this species is also sensitive to channel modification, pollution, and sedimentation, but we do not know how the relative sensitivity of this species to these challenges compares to other species (Taxonomic Expertise Committee 2004).

CONSERVATION ACCOMPLISHMENTS

The breeding season of *E. roanokensis* has been studied in the Broad River (Price and Eads 2011).

CONSERVATION RECOMMENDATIONS

- Explore the need to list the Roanoke Slabshell within South Carolina.
- Closely monitor Roanoke Slabshell populations near dams for changes in population density.
- Work with other state agencies (DHEC) to determine appropriate minimum flows to protect the Roanoke Slabshell. Also, recommend minimum flows during the FERC relicensing process.
- Facilitate the travel of anadromous fishes by keeping rivers and streams free of artificial obstructions or by using fish ladders at dams. Monitor areas upstream of fish ladders or locations where obstructions have been removed to determine if the Roanoke Slabshell has extended its range upstream.
- Protect critical habitats for the Roanoke Slabshell 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 for the Roanoke Slabshell.
- Encourage responsible land use planning.
- Consider this species' needs when participating in the environmental permit review process.
- Educate off-road motor vehicle operators of the negative effects of crossing streams at multiple locations and using stream bottoms as trails.
- Conduct further research to determine the degree of sensitivity of the Roanoke Slabshell to various point and non-point sources of pollution and land use impacts.

MEASURES OF SUCCESS

Persistence of identified populations of the Roanoke Slabshell and increases in their populations where they are currently very rare will be considered indicative of success. Achieving minimum

flows from dams that are effective in reducing or eliminating associated Roanoke Slabshell mortality will also be considered a measure of success.

LITERATURE CITED

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