

Rayed Pink Fatmucket (*Lampsilis splendida*)
Eastern Lampmussel (*Lampsilis radiata*)

Contributor (2005): Jennifer Price (SCDNR)

Reviewed & Edited (2012): William Poly (SCDNR)

These two species are discussed together in this document due to taxonomic uncertainty. These species may represent geographical variation in the morphology of a single species.



Rayed Pink Fatmucket by John Alderman

Taxonomy and Basic Description

Individuals identified as the Rayed Pink Fatmucket have an elongate shell that is oval in shape and greatly inflated. The anterior end is rounded. The posterior end of the shell is sexually dimorphic; in the male, this area is bluntly pointed, and in the female, it is more broadly rounded. There is a sharp posterior ridge and sometimes a secondary ridge on the shell of these species. The outer surface of the shell is wrinkled with a fuzzy appearance and yellowish-green to reddish-brown in color. Further, the outer surface of the shell has numerous green rays that may become dark brown and obscured in older specimens. The inner surface of the shell varies from bluish-white to pinkish or purple and is iridescent. Rayed Pink Fatmuckets attain lengths of approximately 110mm (4.4 in.) (Bogan and Alderman 2004, 2008).

Eastern Lampmussel by NCWRC



Individuals identified as the Eastern Lampmussel have shells that are subelliptical to subovate in shape, with the anterior end rounded. The shells of the male are elongate and not expanded posteriorly, while the shells of females are expanded in the postbasal area. The posterior ridge is low to absent. The outer surface of the Eastern Lampmussel shell is yellowish- or brownish-green with poorly defined dark green or black rays over the entire surface. The inner surface is white, pink, or salmon-colored. The shell may be greater than 120 mm (4.8 in.) in length (Bogan and Alderman 2004, 2008).

Status

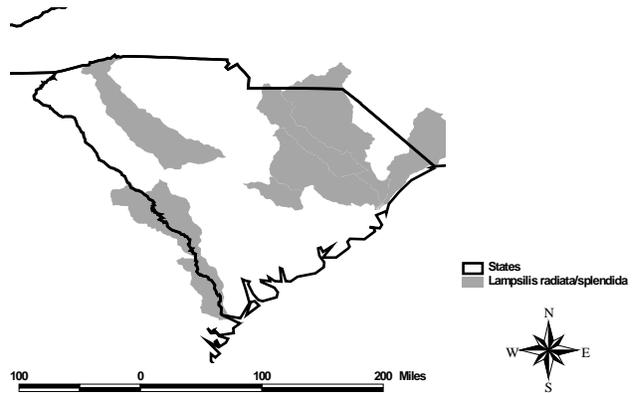
The Rayed Pink Fatmucket is currently considered a species of special concern in South Carolina. NatureServe (2011) currently identifies *L. splendida* with a global status of vulnerable (G3). It is considered critically imperiled (S1) in North Carolina, apparently secure (S4) in Georgia, and imperiled (S2) in South Carolina (NatureServe 2011). The Eastern Lampmussel is not ranked in South Carolina. This species is considered secure globally (G5), critically imperiled (S1) in North Carolina and imperiled (S2) in South Carolina (NatureServe 2011).

POPULATION SIZE AND DISTRIBUTION

Mussels currently classified as Rayed Pink Fatmucket are found from the Altamaha and Ogeechee Rivers in Georgia to the Cape Fear River Basin in North Carolina. The Eastern

Lampmussel, as currently recognized, is more widespread and has a more northern distribution, reaching its southern limit in the Pee Dee River Basin of South Carolina. A gradient of phenotypes is found in South Carolina, and for some specimens, it is difficult to decide which mussel it more closely resembles: the Rayed Pink Fatmucket or the Eastern Lampmussel. Taxonomic work across the ranges of both “species” should be a high priority to resolve these issues.

In South Carolina, these species can be found in the Cloud’s Creek, the Savannah, Black, lower Waccamaw, Lynches, and Pee Dee Rivers, as well as Lake Marion.



HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Both the Rayed Pink Fatmucket and the Eastern Lampmussel are found in muddy and sandy areas in streams, rivers, and blackwater swamps (Taxonomic Expertise Committee 2004). Glochidia of the Fatmucket have been found to metamorphose on Largemouth Bass (Johnson, et al. 2012).

CHALLENGES

All of the general challenges to mussels may apply to these species, although we do not know how specific actions affect them. Observations suggest that these species are sensitive to channel modification, pollution, sedimentation and low oxygen conditions, 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

A small number of individuals of Eastern Lampmussel were reared in captivity, and 11 tagged mussels were released in the lower Broad River in 2010 (C. Eads, pers. comm.).

CONSERVATION RECOMMENDATIONS

- Conduct genetic analyses across the known ranges of both the Rayed Pink Fatmucket and Eastern Lampmussel and determine whether they are taxonomically distinct. If they are, determine which morphological characters are appropriate for use in distinguishing these species in South Carolina.
- Conduct surveys to clarify the current range of the Rayed Pink Fatmucket and Eastern Lampmussel.
- Monitor population trends of the Rayed Pink Fatmucket and Eastern Lampmussel.

- Protect critical habitats for the Rayed Pink Fatmucket and Eastern Lampmussel from future development and further habitat degradation by following Best Management Practices (BMP) 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 Rayed Pink Fatmucket and Eastern Lampmussel.
- 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 Rayed Pink Fatmucket and Eastern Lampmussel to various point and non-point sources of pollution and land use impacts.

MEASURES OF SUCCESS

Resolution of the taxonomic status of the Rayed Pink Fatmucket and the Eastern Lampmussel in South Carolina would represent one measure of success. Persistence of extant populations and an increase in very small populations will also indicate the success of management techniques.

LITERATURE CITED

- Bogan, A.E. and J.M. Alderman. 2004. Workbook and key to the freshwater bivalves of South Carolina. i-ii + 1-64 pp. + 5 pls.
- Bogan, A.E. and J.M. Alderman. 2008. Workbook and key to the freshwater bivalves of South Carolina (Revised Second Edition). i-ii + 1-66 pp. + 5 pls.
- NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>.
- Johnson, J. A., J. M. Wisniewski, A. K. Fritts, and R. B. Bringolf. 2012. Host identification and glochidia morphology of freshwater mussels from the Altamaha River Basin. *Southeastern Naturalist* 11(4): 733-746.