

## Carolina Creekshell

*Villosa vaughaniana*

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### DESCRIPTION

#### Taxonomy and Basic Description

The shell of the Carolina Creekshell is elliptical in the male and ovate in female, with the anterior margin rounded in both sexes. The posterior end is pointed about two-thirds of the way from the ventral margin. Males have a gently curved ventral margin; the female has a distinct posterior basal swelling and a straight ventral margin. The outer surface of the Carolina Creekshell is moderately shiny and greenish-yellow to dark brownish-yellow with numerous continuous green rays. The inner surface is shiny, iridescent white or bluish-white. Male Carolina Creekshells reaches a length of up to 60 mm (2.4 in.); female maximum length is 54 mm (2.2 in.) (Bogan and Alderman 2004, 2008).

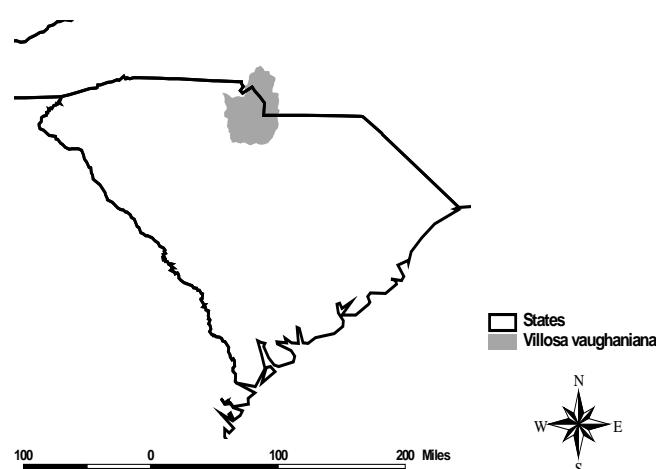


#### Status

NatureServe (2011) currently identifies the Carolina Creekshell as having a global ranking of imperiled (G2). This mussel is considered critically imperiled (S1) in South Carolina and imperiled (S2) in North Carolina. The Carolina Creekshell has been documented in several South Carolina streams; one record is as recent as August 2004 (T. Savidge, the Catena Group, pers. comm.). The Carolina Creekshell is also a federal species of concern.

### POPULATION SIZE AND DISTRIBUTION

The Carolina Creekshell is endemic to North Carolina and South Carolina and has been found in the Cape Fear, Catawba, Pee Dee, and Santee-Cooper River Basins. In South Carolina, populations are extremely sparse; generally only one or two individuals are found at a site (Taxonomic Expertise Committee 2004). The Carolina Creekshell was first described in 1838 from specimens found at Sawney's Creek in Kershaw County, South Carolina. However, it has not been found at this location in recent years despite several surveys. This mussel has been



found at several sites in the upper Lynches River system (J. Alderman, Alderman Environmental Services, pers. comm.) and in Fishing Creek in the Catawba drainage (T. Savidge, The Catena Group, pers. comm.).

## HABITAT AND NATURAL COMMUNITY REQUIREMENTS

The Carolina Creekshell tends to be found in mud or sand near stream banks. Occasionally, this mussel is found in gravelly sand in the main channel of streams and medium-sized rivers. Regardless of the substrate, this species needs to be able to burrow.

## CHALLENGES

Although this species appears to be somewhat hardier than some other mussels, its endemic distribution—primarily in the area of the Charlotte, North Carolina metropolitan area—makes it particularly vulnerable to development (Taxonomic Expertise Committee 2004).

## CONSERVATION ACCOMPLISHMENTS

There are no significant conservation accomplishments specifically for the Carolina Creekshell at this time.

## CONSERVATION RECOMMENDATIONS

- Initiate the process to list the Carolina Creekshell as State Endangered.
- Conduct a thorough search of museum records for the Carolina Creekshell and determine if there are any additional historical records for this species.
- Conduct surveys to closely monitor population trends for the Carolina Creekshell and to look for populations near the type locality to determine if any other populations remain.
- Careful land use planning is needed in the Charlotte metropolitan area to protect watershed integrity in the upper Lynches River and Catawba watersheds. Protection of land through conservation easements and land purchases should be a high priority especially in the vicinity of Fishing Creek and the headwater streams around the upper Lynches River.
- Consider species needs when participating in the environmental permit review process.
- Conduct further research to determine the degree of sensitivity of the Carolina Creekshell to various point and non-point sources of pollution and land use impacts.

## MEASURES OF SUCCESS

Persistence of known populations and an increase in the size of those populations will indicate the success of management activities.

## 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.

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