Valvata bicarinata (Lea 1841)

two-ridge valvata

Taxonomy & Systematics. Valvatids comprise their own unique Superfamily Valvatacea, a strictly freshwater group whose marine ancestor is difficult to identify. Their hermaphroditic mode of reproduction is unique among freshwater prosobranchs. Their ciliated bodies and the extension of their mantle into a pallial tentacle have been interpreted as adaptations for filter feeding, although this is by no means certain.

Valvata species are notoriously polymorphic, and *Valvata bicarinata* is no exception. A single population can contain multiple morphological variants. Whereas typical *V. bicarinata* have two spiral carinae or angulations on the shell, a morph (variety *normalis*) with three carinae has also been described. Thus the distinction between *V. bicarinata* and the earlier described *V. tricarinata* seems tenuous at best.

Habitat & Distribution. This is a rare species in southern Atlantic drainages. We have no confirmed records of *V. bicarinata* from Virginia, although two populations in Georgia, one population in South Carolina, and one population in the northeast corner of North Carolina, at Wiccacon Creek. Elsewhere the species has been reported from rivers and lakes in widespread eastern and Midwestern states, including Illinois, Iowa, New Jersey, Pennsylvania, Tennessee, and Alabama. The widely scattered occurrence of *V. bicarinata* in southern Atlantic drainages is consistent with an hypothesis of dispersal by migratory waterfowl.

Ecology & Life History. Valvatids are typical elements of the fauna of northern latitudes, especially cooler, well-oxygenated lakes. Populations seem sensitive to environmental degradation, apparently being driven to extinction in Oneida Lake, NY, by years of artificial eutrophication. The 2009 collection of *V. bicarinata* in a ponar sample taken at 3.2 m depth from Lake Marion, SC, suggested to us, however, that many southern populations may remain undiscovered.

Conservation Status. NatureServe G5/SU - Secure/Under Review.

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