

# Slabside Pearlymussel

## *Pleuronaia (=Lexingtonia) dolabelloides*



Adult *Pleuronaia dolabelloides* (69 mm) collected freshdead September 15, 2005, from the Duck River at Slick Shoals, Maury County, TN.

**Lead Region** – USFWS Southeast (IV) Region

**Lead Field Office** – North Carolina Ecological Services Field Office, Asheville, NC

Robert S. Butler (Field Contact)  
828/258 3939, ext. 235

**Current Status** – Candidate (Listing Priority 5), Non-petitioned

### Description

The slabside pearlymussel is a moderately sized mussel, with mature individuals reaching lengths of 85 mm. The shell is moderately compressed and generally subtriangular in shape (but may exhibit considerable

variability in shell shape), with very solid, heavy valves that are moderately inflated. The periostracum is tawny to brown, often greenish yellow in juveniles, usually with a few interrupted green rays of variable width. The rays often do not extend to the ventral margin.

It closely resembles *Pleuronaia barnesiana* and *Pleurobema oviforme*, it also resembles *Fusconaia cor*, *F. cuneolus*, and some young *F. subrotunda*. The slabside pearlymussel can be separated from all of these by its ventrally curved posterior ridge and generally steeper posterior slope. The foot of the slabside pearlymussel is almost always bright orange, while the foot of *F. cor*, *F. cuneolus*, and *P. oviforme* are always tan or white, the

foot of *P. barnesiana* and *F. subrotunda* may be pale orange, but is usually always tan or white. The nacre is usually white, but may be tinged with yellow, having some iridescence posteriorly.

### Biology and Life History

The slabside pearlymussel, as with other adult freshwater mussels, are filter feeders, siphoning phytoplankton, diatoms, and other microorganisms from the water column. Though for the first several months (as juveniles), mussels will utilize foot (pedal) feeding, feeding on algae and detritus. Though no age specific information is available for the slabside pearlymussel, it is thought to be relatively long-lived, possibly living several decades, considering that it is a moderately-sized heavy-shelled riverine species.

The slabside pearlymussel is a short term, summer brooder; with females brooding glochidia (larval life stage) from mid May through early August. The larval life stage, glochidia, of freshwater mussels is an obligate parasite on fish, where glochidia must come in contact with a specific host fish(es) in order for their survival to be ensured. Glochidia have been reported for the slabside pearlymussel in stream drift from mid June to mid-late August in the North Holston River, VA. Natural infestations of glochidia from the slabside pearlymussel have been reported on several *Notropis* species in the shiner family (Cyprinidae), including *Notropis arommus* (Popeye Shiner), *Notropis leuciodus* (Tennessee Shiner), *Notropis photogenis* (Silver Shiner), *Notropis rubellus* (Rosyface Shiner), *Notropis rubricroceus* (Saffron Shiner), and *Notropis telescopus* (Telescope Shiner), as well as smallmouth bass (*Micropterus dolomieu*).

## Population Status and Distribution

The slabside pearlymussel's distribution is restricted to the Cumberland (Kentucky and Tennessee) and Tennessee (Alabama, Tennessee, Virginia) River systems. Currently, distribution is limited to nine streams in the Tennessee River system, and is believed extirpated from the Cumberland River system. It is currently extant in the Clinch, Powell, Elk, Duck, and Hiwassee rivers in Tennessee, the North Fork and Middle Fork Holston rivers in Virginia, and the Paint Rock River and a short reach of Bear Creek in Alabama.

## Habitat

The slabside pearlymussel is primarily a large creek to moderately-sized river species. It generally is found in gravel substrates with interstitial sand, with moderate current, at depths less than 1 meter deep in moderate to swift current velocities. This species requires flowing, well oxygenated waters to thrive.

## Threats

The primary reason for the decline of the slabside pearlymussel, and other mussel species in the eastern United States, is habitat loss and degradation, with population losses due to impoundments probably contributing more than any other single factor. The majority of the Tennessee and Cumberland River main stems and many of their largest tributaries are now impounded. By the mid- to late-1970's, around 20 percent of the Tennessee River and its tributaries with drainages larger than 25 square miles were impounded by the Tennessee Valley Authority (TVA). Approximately 90 percent of the Cumberland River downstream of Cumberland Falls is either impounded or adversely impacted by cold water releases. Resulting downstream impacts resulting from dam construction includes; thermal alterations, changes in channel characteristics, altered flow regime, daily discharge fluctuations, increased silt loads, and altered fish communities, to name a few. Other impacts to habitat include; instream gravel mining, coal mining, contaminant (point and non-point source) discharges, and siltation and general sedimentation.



*Pleuroonia dolabelloides* (43 mm) collected freshdead from muskrat midden July 18, 2007, in the Paint Rock River, near the The Nature Conservancy Roy B. Whitaker Preserve, Jackson County, AL.

## Recovery Goals

Recovery of this species is possible, but would require a multi-state, multi-agency approach. Current extant populations of slabside pearlymussel should be protected from further degradation by restoring and protecting riparian habitat, and implementing further measures to improve water quality. These water and stream habitat quality improvements can make it possible for extant mussel populations to expand in some new river reaches, and may lead to agency personnel augmenting depleted stocks or reintroducing extirpated mussel populations in other streams. TVA and other agencies responsible for dam operation, have and can modify water releases from its dams to improve water quality, or better reflect a more nature flow regime below the dams.

Private landowners could also play an important role in the recovery of the slabside pearlymussel. Cooperative landowners could through numerous government and non-government grant and cost-share programs, protect, restore, and preserve riparian habitat. Restoring and protecting habitats essential for this species' continued survival and recovery.

Potential partners, key contacts, and potential funding sources

Potential Partners: ADCNR, TWRA, VGIF, GSA, TVA, TNC, WWF, ACOE

Key Contacts: FWS (Paul Hartfield-JAMS, Andy Ford, Jeff Powell-AFO, Dwight Cooley-Wheeler NWR), ADCNR (Paul Johnson, Jeff Garner), GSA (Stuart McGregor), TNC (Paul Freeman), WWF (Judy Takats), TVA (Peggy Shute).

Potential Funding Sources: Federal (Region 4 flex funding, Preventing Extinction/Showing Success); States (State Wildlife Grants); TNC and WWF (individual contributions/initiatives); TVA (TBD), others (TBD).

**March 2012**

