

Western Pearlshell - *Margaritifera falcata*

Abundance: Unknown

Status: NSSU

NatureServe: G4G5 SNR

Population Status: Unknown

Limiting Factor: Unknown

Comment: None

Introduction

North America hosts the world's highest diversity of freshwater mussels (over 300 species), but more than half of the native mussels in the midwestern United States are listed as threatened or endangered (Cummins and Mayer 1992). Shells of the western pearlshell (*Margaritifera falcata*) are up to 12.7 cm (5 inches) in length, dark brown to black in color, and rays absent. These mussels do not display external sexual dimorphism. Western pearlshell lives in Alaska, the western United States, and British Columbia, Canada (NatureServe 2009). These bivalves are considered vulnerable (Montana) to secure (British Columbia), but possibly extirpated in Utah (NatureServe 2009). The status of this species is unknown in Wyoming and several other western states, although the mussel was extirpated from most of the mainstem of the Snake and Columbia Rivers (Nedeau et al. 2009; NatureServe 2009). Western Pearlshell is wide-ranging but some populations are declining (Nedeau et al. 2009) or no longer viable at the central and southern edge of the range. Many populations in Montana are not recruiting, are dominated by old individuals, and likely to go extinct (MTNHP 2010). In Wyoming, the western pearlshell is known from the upper Snake and Bear Rivers, and the Missouri River headwaters (Henderson 1924; Hoke 1979; Beetle 1989; Hovingh 2004; Cvanara 2005). Freshwater mussels are filter feeders that remove fine organic matter from the water column (Smith 2001). The life cycle of aquatic mussels requires a host fish or amphibian during the larval stage. Larval mussels (glochidium) disperse while attached to their host and develop into adults if released on suitable substrate. Natural hosts that are known for the western pearlshell include Chinook (*Oncorhynchus tshawytscha*), coho (*Oncorhynchus kisutch*), and sockeye salmon (*Oncorhynchus nerka*), cutthroat trout (*Oncorhynchus clarkii* sp.), speckled dace (*Rhinichthys osculus*), Lahontan redband (*Richardsonius egregius*), and Tahoe sucker (*Catostomus tahoensis*; Nedeau et al. 2009, OSUMD 2010). Introduced brown (*Salmo trutta*) and brook trout (*Salvelinus fontinalis*) are known non-native hosts (Nedeau et al. 2009). Raccoons, muskrats, otters, fishes, turtles, and birds all feed on mussels (Grabarkiewicz and Davis 2008). Wyoming's native mussel diversity is naturally low (7 species known), owing to the generally high elevation, headwater character of Wyoming's aquatic ecosystems, but is worthy of further study.

Habitat

Western pearlshell is most abundant in large, cold, clear rivers, but inhabits small headwater streams as well (Hoke 1979; Beetle 1989; Whaley et al. 2004; Nedeau et al. 2009). This species prefers sand, gravel, and cobble substrate (Hoke 1979; Beetle 1989; Whaley et al. 2004; Nedeau et al. 2009), whether these are dominant or localized microhabitats sheltered by boulders (Nedeau et al. 2009).

Problems

- h Pollution, changes in flow regime, extremely low flows, siltation, changes in substrate availability, and interrupting glochidial host fish relationships.

Conservation Actions

- h Baseline population distribution, abundance, and structure data for this mussel are needed throughout its range in Wyoming to evaluate the need for, and to help guide potential conservation actions. The viability of populations of this mussel in Wyoming is unknown.

Monitoring/Research

A population monitoring plan needs to be developed, based on declines in neighboring portions of its range in Montana and must incorporate much needed baseline information.

Recent Developments

Wyoming Game and Fish Department personnel discovered that the western pearlshell population in the Wyoming portion of the Bear River was discovered to cohabit with a population of California floater mussels during October 2008.

A comprehensive survey of Wyoming's native mussels and their habitats was funded by a State Wildlife Grant for fiscal years 2011 through 2013. This project will likely be initiated in western Wyoming.

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SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: April 2010. Wyoming Game and Fish Department. Note that brown indicates the current known range of the species.