

Western Pearlshell (*Margaritifera falcata*)

Species Status Statement.

Distribution

Western pearlshell, a freshwater mussel, occurs across western North America, in streams from New Mexico to the southern interior of British Columbia and Alaska (Clarke 1981). In Utah, there are 11 known historical localities, all in the northwestern part of the state.

Table 1. Utah counties currently occupied by this species.

Western Pearlshell
BOX ELDER
RICH
SALT LAKE
SUMMIT

Abundance and Trends

Surveys of the 11 known historical localities in 1993 were uniformly unsuccessful. Surveyors found no individuals, and ultimately concluded that western pearlshell had disappeared from the state (Clarke 1993). Since 2009, however, directed surveys as well as incidental sightings by anglers have located this mussel at five localities in Utah (UDWR 2015). Since its rediscovery, Utah Division of Wildlife Resources biologists have periodically monitored the presence of western pearlshell in Utah.

Statement of Habitat Needs and Threats to the Species.

Habitat Needs

Western pearlshell occupies small, low gradient, streams with cold, well-oxygenated water (Clarke, 1981; UDWR 2015). Individuals burrow in sand or gravel at depths of 1.5-5 feet (UDWR 2015). An interesting and pertinent aspect of habitat for most freshwater mussels, including this one, concerns their reproductive cycle. Their fertilized eggs develop into larvae, which the female carries for part of their development. After she releases them into the environment, the larvae must attach to the gills, fins, or body of a passing fish. During this parasitic “hitchhiker” stage, the mussel larvae are harmless to their fish host. The larvae of many mussel species, including this one, can only survive on particular species of fish. With such mussels, if their host species of fish disappear, the mussels can no longer reproduce.

Threats to the Species

Freshwater mussels including western pearlshell are vulnerable, on their own and indirectly via their fish host species, to changes in water quality and other habitat modifications (Frest 1999). Large or severe wildfires, the construction, presence and operation of dams and diversions, poorly managed agricultural activities, and a decrease in host fish populations are threats at a local level and could negatively impact western pearlshell.

Table 2. Summary of a Utah threat assessment and prioritization completed in 2014. This assessment applies to the species' entire distribution within Utah. For species that also occur elsewhere, this assessment applies only to the portion of their distribution within Utah. The full threat assessment provides more information including lower-ranked threats, crucial data gaps, methods, and definitions (UDWR 2015; Salafsky et al. 2008).

Western Pearlshell
Very High
Inappropriate Fire Frequency and Intensity
High
Improper Grazing (current)
Small Isolated Populations
Soil Erosion / Loss
Medium
Channel Downcutting (indirect, unintentional)
Presence of Dams

Rationale for Designation.

Western pearlshell occurs in a limited number of locations in Utah, and occupies high-quality stream habitats. Direct human pressures, and climate change, presently threaten many stream systems in Utah, and managers and scientists expect these issues to intensify. In order to maintain understanding of the distribution and status of this species in Utah, managers need to conduct occasional surveys, and monitor and manage potential threats. These activities will help prevent the possibility of Endangered Species Act listing of this species.

Economic Impacts of Sensitive Species Designation.

Sensitive species designation is intended to facilitate management of this species, which is required to prevent Endangered Species Act listing and lessen related economic impacts. Western pearlshell requires the presence of appropriate host fish, and the ability of those host fish to move throughout river drainages, to ensure successful reproduction and dispersal of their larvae. Therefore, listing of this mussel would impact management and development of water resources in river drainages in northern Utah. There would also be increased costs of regulatory compliance for many land-use decisions and mitigation costs. Additionally, recreational fisheries management would be impacted for fish species that serve as hosts to this mussel.

Literature Cited.

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