

Winged Floater (*Anodonta nuttalliana*)

Species Status Statement.

Distribution

Uncertainty regarding the taxonomy of winged floater (*Anodonta nuttalliana*) and California floater (*Anodonta californiensis*), two morphologically similar species of freshwater mussel, has been a confounding issue during past surveys and subsequent publications throughout their overlapping distributions. The species are also so genetically similar that some taxonomists (Chong et al. 2008; Jepsen et al. 2009) recommend grouping them into the same clade (while also suggesting up to five deep genetic divisions within that grouping).

Unfortunately, this taxonomic uncertainty has muddied our understanding of the distribution of *A. nuttalliana/californiensis*. Regionally, surveyors have reported one or the other putative species in Arizona, California, Idaho, Oregon, Utah, Washington and Wyoming (Jepsen et al. 2009). In Utah, the clade has been documented (as *A. californiensis*) throughout much of the Bonneville Basin including the Bear River, Salt Creek, Redden Springs, Burraston Ponds, Pruess Lake, Piute Reservoir and Otter Creek Reservoir (Mock et al. 2010). Oliver and Bosworth (1999), while acknowledging the past confusion in taxonomy, listed historical occurrences (of *A. nuttalliana*) in Salt Lake, Davis, Utah and Piute Counties. Efforts are ongoing to attempt to further clarify these species' distribution via eDNA testing (Rodgers and Mock 2018). For now, we choose to group them, and use the name *Anodonta nuttalliana* (Table 1).

Table 1. Utah counties currently occupied by this species.

Winged Floater	
BOX ELDER	PIUTE
CACHE	RICH
DAVIS	SALT LAKE
JUAB	TOOELE
MILLARD	UTAH

Abundance and Trends

Due to past taxonomic uncertainty within the *Anodonta* genus, and the failure of many past researchers to indicate whether they found living or dead specimens, reliable abundance estimates for extant populations of this species are not available (Oliver and Bosworth 1999). Nevertheless, it appears to have disappeared from some Utah localities.

Statement of Habitat Needs and Threats to the Species.

Habitat Needs

Floaters occupy shallow muddy or sandy habitats in slow rivers and lakes, though they also live in some reservoirs. They can inhabit streams and rivers, but in these situations, surveyors normally find them in stable areas with fine sediments and little shear stress (Nedeau et al. 2005). 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 are vulnerable, on their own and indirectly via their fish host species, to changes in water quality and other habitat modifications. This species has historically suffered habitat loss and degradation via water diversions for irrigation, water supply and power generation. It can live in some reservoirs, but many reservoirs experience severe annual water level fluctuations that decimate the standing crop of mussels during low-water periods. Nonnative fish may impact host fish populations in a variety of ways, and nonnative mollusks, such as Asian clams and quagga mussels, can compete with native mussels for food and space (Nedeau et al. 2005).

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).

Winged Floater
No Identified Threats - Data Gaps Only

Rationale for Designation.

The taxonomic uncertainty for *A. nuttalliana* impedes our understanding of the distribution and status of this species, which hinders effective conservation. Taxonomists need to provide clarity within the *Anodonta* genus, and managers need to conduct surveys to resolve the distribution and status of the species. Setting aside taxonomic questions, direct human pressures and climate change presently threaten many aquatic systems in Utah, and managers and scientists expect these issues to intensify. While improving understanding of the distribution and status of this species in Utah, managers need to 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. An ESA listing of winged floater would have unknown economic impacts for Utah. Designated Sensitive Species with no identified threats, only data gaps, will be researched until concerns are allayed, or specific threats are identified for management. In the absence of specific threats to manage, generic measures to protect river and lake habitats are recommended.

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