

Western Silvery Minnow - *Hybognathus argyritis*

Abundance: Extremely rare

Status: NSS2 (Ab)

NatureServe: G4 S2

Population Status: This species has been extirpated from major drainages and occurs in very low abundance in a few others. Populations appear to have declined significantly, but reasons for declines are not known.

Limiting Factor: Habitat: impoundments are most likely responsible for the extirpation of this species from major drainages. Impoundments block migrations, fragment populations, alter temperature and flow regimes, and disrupt life-cycles.

Comment: Changed from NSS1 in 2005 due solely to changes in the matrix. Habitat limitations for this species are severe, but not increasing significantly, precluding NSS1 status in the revised matrix.

Introduction

The historical distribution of the western silvery minnow primarily encompassed the Missouri and middle Mississippi rivers and the lower reaches of tributaries to the Missouri River (Pflieger 1997). Within Wyoming, they are present in the Powder and Little Missouri River drainages (Baxter and Stone 1995; McGree et al. 2010) of the northwestern and northeastern Missouri aquatic habitats. They may be present in the Belle Fourche River drainage but have not been sampled in recent surveys (Patton 1997; McGree et al. 2010). They are believed to be extirpated in the Big Horn drainage. Western silvery minnow are commonly associated with plains minnow (*Hybognathus placitus*) throughout their range, and although the two species look similar, western silvery minnow have a broad and blade-like basioccipital process with a back margin that is straight or only slightly concave (Pflieger 1997). To ensure proper identification of field-collected *Hybognathus* specimens, subsets are positively identified to species by Colorado State University's Larval Fish Laboratory. The diet, movement, breeding behavior, and life-history characteristics of this species are poorly understood and often are presumed to be similar to other species of *Hybognathus*. Throughout its entire range, this species has undergone a large decline in abundance and distribution in recent decades (Pflieger 1997). In Wyoming, it currently is believed to be in decline (McGree et al. 2010). A better understanding of the habitat, life-history, and flow requirements of this species is needed to assess the impacts of water and land use activities.

Habitat

This species typically is found in medium to large, prairie rivers in habitats with sluggish flows. They are found in areas with fine substrate and silted bottoms: shallow backwaters, slow pools, or lower reaches of river tributaries (Pflieger 1997). This minnow species is adapted to turbid rivers, historically associated with the flathead chub (*Platygobio gracilis*), goldeye (*Hiodon alosoides*), plains minnow, sturgeon chub (*Machyropsis gelida*) and shovelnose sturgeon (*Scaphirhynchus platyrhynchus*). Detailed habitat requirements are not presently known (Quist et al. 2004).

Problems

- h Habitat degradation due to impoundments in major river drainages is likely contributing to declines in distribution and population size.
- h Nonnative species are present and may be expanding within drainages occupied by this species.
- h Reductions in turbidity reduce the competitive advantage of this species, encouraging displacement by sight-feeding species that are predators or can more efficiently exploit resources.
- h Altered flow regimes, habitat fragmentation, and impacts to aquatic and riparian habitat associated with agricultural practices.

Conservation Actions

- h Continue efforts to educate landowners and the public about the importance of native fish and their habitats, including the development of a prairie stream conservation brochure.

Monitoring/Research

Revisit sites in the range of this species sampled by Barrineau et al. (2007), Peterson et al. (2009) and McGree et al. (2010) to continue monitoring presence/absence and distribution.

Recent Developments

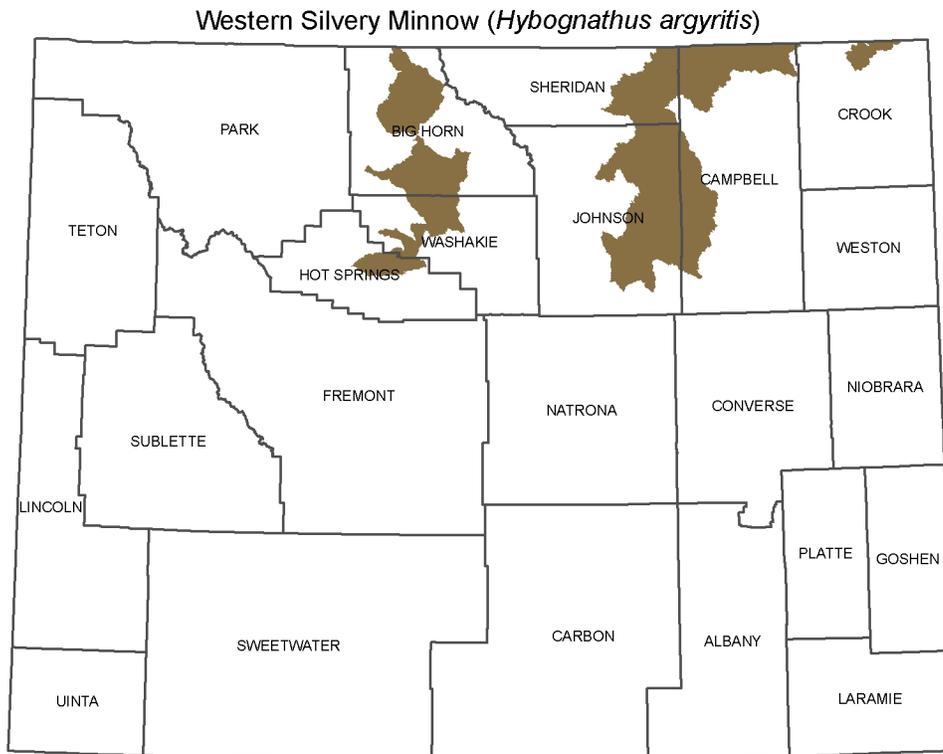
No plains minnow were found during detailed fish and habitat surveys at sites throughout the Bighorn River basin in 2006 and 2007 (Bear 2009). The species is believed extirpated from the basin.

Prairie stream surveys were completed in 2004-2005 (Barrineau et al. 2007) and 2008-2009 (McGree et al. 2010) to assess the distribution of this species in northeast Wyoming. Detailed spatially and temporally stratified surveys were also conducted from 2004 to 2006 at multiple sites on the mainstem Powder River in Wyoming and Montana (Peterson et al. 2009) and Crazy Woman Creek in Wyoming (WGFD 2005, WGFD 2006, WGFD 2007). Results of these studies suggest a decline in the distribution of this species.

Completed construction of the Kendrick Diversion dam bypass channel on Clear Creek, a tributary to the Powder River, to allow fish passage for spawning migrations. A project to determine which species are utilizing the bypass channel will be initiated in 2011.

References

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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.