Plains Minnow - Hybognathus placitus

Abundance: Rare

Status: NSS3 (Bb) NatureServe: G4 S3

Population Status: Some populations appear vulnerable where they occur in low abundance and are restricted from historical distribution. This species has been extirpated from the North Platte River basin and may also be gone from the Bighorn River basin. Other populations appear stable.

Limiting Factor: Habitat: impoundments in major river drainages reduced population size and distribution presumably through loss of stream connectivity, reduced turbidity, altered temperature regimes, and flow regulation.

Comment: NSS Ranks are reviewed and revised with each SWAP revision. No changes were made for this species in this revision.

Introduction

Historically, the distribution of the plains minnow was similar to the range of the western silvery minnow (Hybognathus argyritis), found in the Missouri River and middle Mississippi River drainages, but was more widespread in western tributaries of the Missouri river (Pflieger 1997). They are considered native to the Mississippi, Red, Arkansas, and Missouri River drainages and are found primarily from Montana and Wyoming east to Iowa (Weitzel 2002). In Wyoming, plains minnow have been reported in the Belle Fourche, Big Horn, Cheyenne, Little Missouri, and Powder river drainages (northeastern and northwestern Missouri aquatic habitats; Baxter and Stone 1995; Patton 1997; McGree et al. 2010). They are rare in some drainages, for example, McGree et al. (2010) caught two above Keyhole Reservoir, Patton (1997) found one above and one below Keyhole Reservoir, and Pindel (1997) reported one from near Devils Tower. Dooenbos also (1998) captured low numbers in South Dakota near the state line. No Hybognathus sp. were found in the Bighorn River basin during widespread surveys in 2005 (WGFD 2006, Wilhite 2007) and 2006-2007 (Bear 2009). The species has not been documented in the Bighorn River since surveys reported by Patton (1997) and may have been extirpated. Plains minnow have not been sampled in the North Platte River drainage for many years (Patton 1997; Bear and Barrineau 2007; Moan et al. 2010) and are presumed extirpated. Plains minnow are commonly associated with the western silvery minnow throughout their range, and although the two species look similar, plains minnow have a narrow and peg-like basioccipital process with a back margin that is nearly straight (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. Limited information exists about this species, but its diet is thought to include algae and other organic matter and spawning likely involves an extended breeding season and semibuoyant eggs that hatch in the current (Pflieger 1997; Platania and Altenbach 1998). Throughout its entire range, this species has undergone a large decline in abundance and distribution in recent decades (Pflieger 1997). In Wyoming, it is currently 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

Plains minnow are often associated with large, turbid, prairie streams and rivers, slow water and side pool habitat (Baxter and Stone 1995). They are typically found in streams with sand or silt bottoms and some current (Pflieger 1997). The plains minnow is tolerant of high water temperature, high salinity and low oxygen (Ostrand and Wilde 2001), making them well adapted for survival in intermittent pools.

Problems

- Habitat degradation due to impoundments in major river drainages is likely contributing to declines in distribution and population size.
- 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.
- Nonnative species are present and may be expanding within drainages occupied by this species.
- Altered flow regimes, habitat fragmentation, and impacts to aquatic and riparian habitat associated with agricultural practices.

Conservation Actions

- 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

Establish a routine monitoring program at select sites reported in Barrineau et al. (2007), Peterson et al. (2009), and McGree et al. (2010) to track the distribution and relative abundance of this species. If observed in the Bighorn River basin, voucher specimens should be collected.

Continue to identify and record observations while conducting fisheries management sampling.

Recent Developments

Prairie stream surveys were completed in 2004-2005 (Barrineau et al. 2007; Bear and Barrineau 2007) and 2008-2009 (McGree et al. 2010; Moan et al. 2010) to assess the distribution of this species in eastern 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 Ceek in Wyoming (WGFD 2005, WGFD 2006, WGFD 2007).

Detailed fish and habitat surveys were also conducted at sites throughout the Bighorn River basin in 2006 and 2007 (Bear 2009). No plains minnow were found.

Completed construction of the Kendrick Diversion dam bypass channel on Clear Creek in 2010, a tributary to the Powder River, to allow fish passage for spawning migrations. A project to determine which species are utilizing the bypass channel was begun in 2011 and documented that Plains Minnow ascended the bypass channel and entered Clear Creek above Kendrick Dam (Bradshaw 2006).

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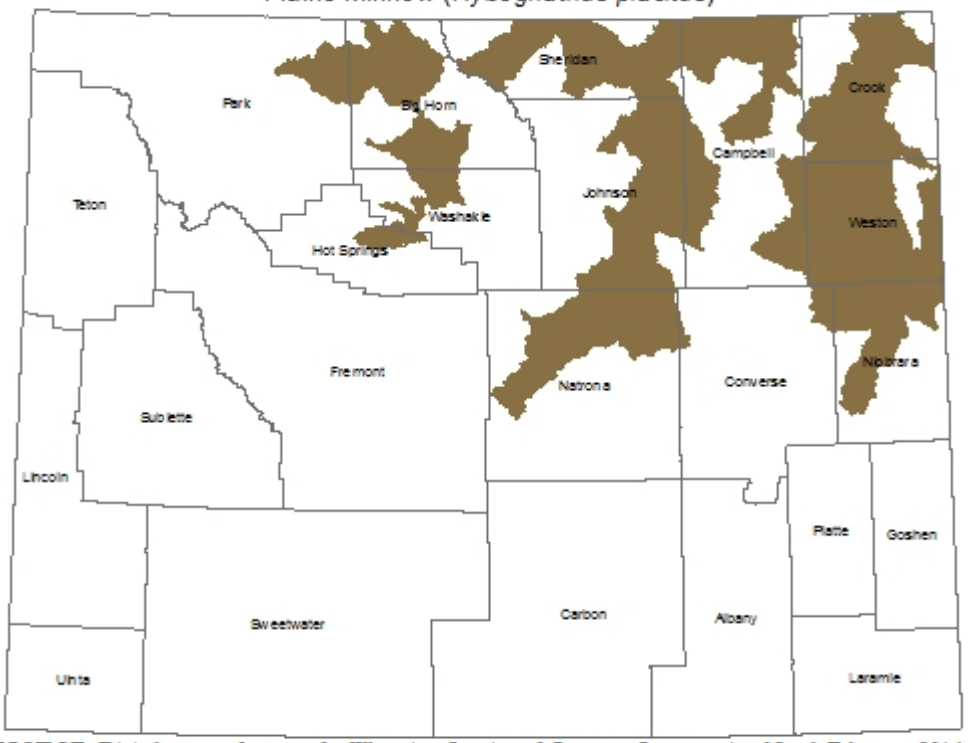
Plains Minnow (*Hybognathus placitus*)



SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: February 2016. Wyoming Game and Fish Department. Note that brown indicates the current known range of the species.