

Brassy Minnow - *Hybognathus hankinsoni*

Abundance: Rare

Status: NSS4 (Bc)

NatureServe: G5 S5

Population Status: Vulnerable due to declining populations and decreasing distribution. Appear to be declining throughout range in Wyoming and surrounding states.

Limiting Factor: Habitat: vulnerable with increases in habitat loss likely.

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

Introduction

The range of the brassy minnow includes the Missouri and upper Mississippi river drainages, extending from eastern Wyoming and Montana across the northern states to Ontario and New York and south to Kansas and Missouri (Baxter and Stone 1995). In Wyoming, this species is most common in the southeast (Moan et al. 2010; Niobrara, North Platte, and South Platte drainages), where water is less turbid (Baxter and Stone 1995). However, brassy minnow have been found in the Cheyenne (Barrineau et al. 2007; McGree et al. 2010), Little Missouri (Patton 1997), and Powder (Fleischer 1978; Davis 2008) river drainages and may be present in the Belle Fourche River drainage (Simon 1951; Mueller and Rockett 1966). Brassy minnow look similar to other *Hybognathus* spp. in Wyoming, and may be distinguished by dissection or, in the field, by eye position and diameter (Scheurer et al. 2003). To ensure proper identification of field-collected *Hybognathus* specimens, subsets are positively identified by Colorado State University's Larval Fish Laboratory. Because brassy minnow prefer small, clear streams with low velocity, larger eyes and a more upturned ventral profile could be advantageous (Scheurer et al. 2003). The spawning of brassy minnow involves male courtship behaviors and takes place in and over vegetation (Baxter and Stone 1995; Pflieger 1997). Females expel somewhat adhesive eggs (Baxter and Stone 1995) and may spawn during a single period of the summer (Scheurer et al. 2003). The diet of this species is almost strictly herbivorous; algae and organic material are the primary food items (Baxter and Simon 1995; Pflieger 1997). Brassy minnow are known to move large distances for survival and reproduction (Scheurer et al. 2003), so retaining stream flow and connectivity is critical to their persistence. Additional investigation into the life-history and habitat requirements of brassy minnow is needed.

Habitat

Brassy minnow prefer clear water and weedy ponds and streams (Baxter and Stone 1995; Pflieger 1997). They are typically found in slow runs or pools with mud bottoms (Baxter and Stone 1995) and often are associated with the fathead minnow (*Pimephales promelas*) and other shiner species (Pflieger 1997).

Problems

- h Natural and human-caused habitat degradation occurring in drainages within the range of this species may have detrimental effects on populations.
- h Lack of connectivity resulting from low flows or other physical barriers (natural and man made) may significantly limit access to upstream habitats.
- 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.
- h Continue efforts to maintain flows and connectivity.

Monitoring/Research

Revisit selected sites in the range of the brassy minnow sampled by Patton (1997), Barrineau et al. (2007), Bear and Barrineau (2007), McGree et al. (2010), and Moan et al. (2010) to continue monitoring species presence/absence and distribution.

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 and to identify conservation actions.

The Laramie Fisheries Management Crew conducted extensive surveys in Lodgepole Creek upstream of WY HWY 213 in 2011 and 2012. Over a mile of Lodgepole Creek was sampled in 2011 upstream from HWY 213 and brassy minnow were found at 12 of the 16 sampling sites. A total of 225 brassy minnow were collected in the >1 mile of Lodgepole Creek surveyed in 2011. Surveys in 2012 occurred upstream of the 2011 surveys and 46 brassy minnow were collected. Brassy minnow appear to be common in Lodgepole Creek from HWY 213 upstream about 9 miles, especially in their preferred habitat (WGFD 2012, 2013).

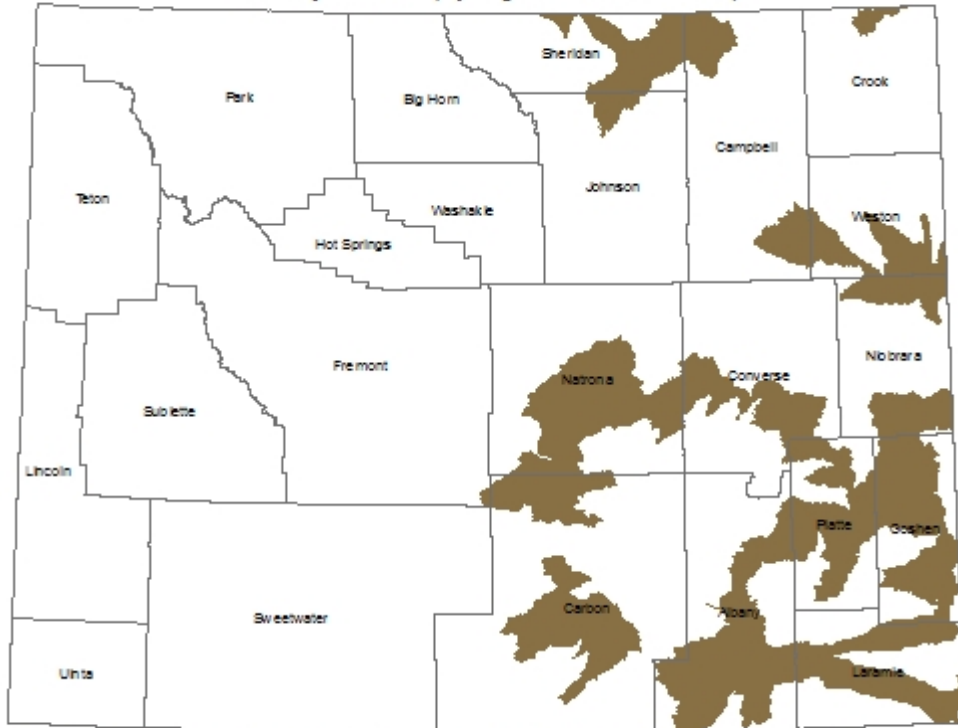
From June 29, 2012 to August 5, 2012 the Arapaho Fire burned over 100,000 acres (153 square miles) in Albany, Platte and Converse counties. Roughly 46 miles of the North Laramie River were directly affected by the fire. Six stations on the North Laramie River and headwater streams (Bear Creek and Friend Creek); above, below and within the fire affected area were sampled in 2013. Limited numbers and narrow distributions of these fish were found in 2013 CKC, CHS, FHM, LND, STR, STC, and WHS. No BMN were captured in 2013 in the North Laramie River. Four sampling events and two fish transplants occurred on various North Laramie River sections in 2014 and BMN were found below the North Laramie Diversion in 2014 (WGFD 2014, 2015).

Multiple surveys on Lodgepole and Horse creeks and the Laramie and Niobrara rivers were conducted by the Aquatic Assessment and Laramie Fish Management crews in 2014-2015 as part of the Eastern Wyoming Intermittent Streams project. Brassy Minnow were found in all four streams in moderate abundance. These recent surveys have documented an apparent rebound in these populations following low abundances encountered by Moan et al. (2010) Results are on file and will be detailed in a forthcoming administrative report.

References

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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.