Plains Minnow (*Hybognathus placitus*) Proposed as Threatened in Nebraska

Description:

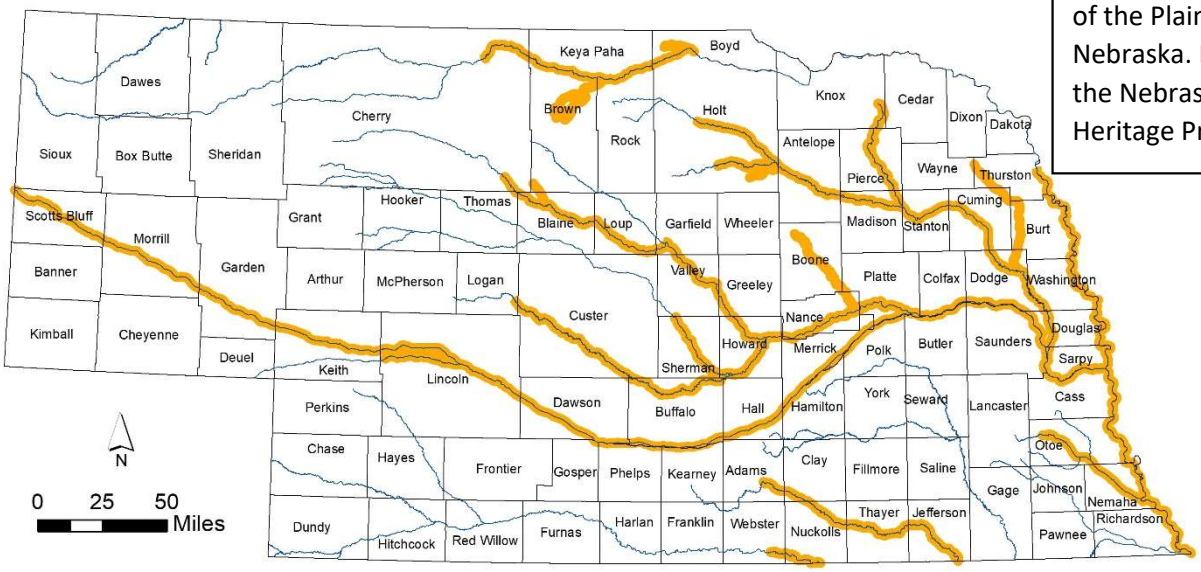
Sides are silver-colored. It has a thin dark line running the length of its tan back. Belly is somewhat transparent. It can grow up to 5 inches long.

Habitat:

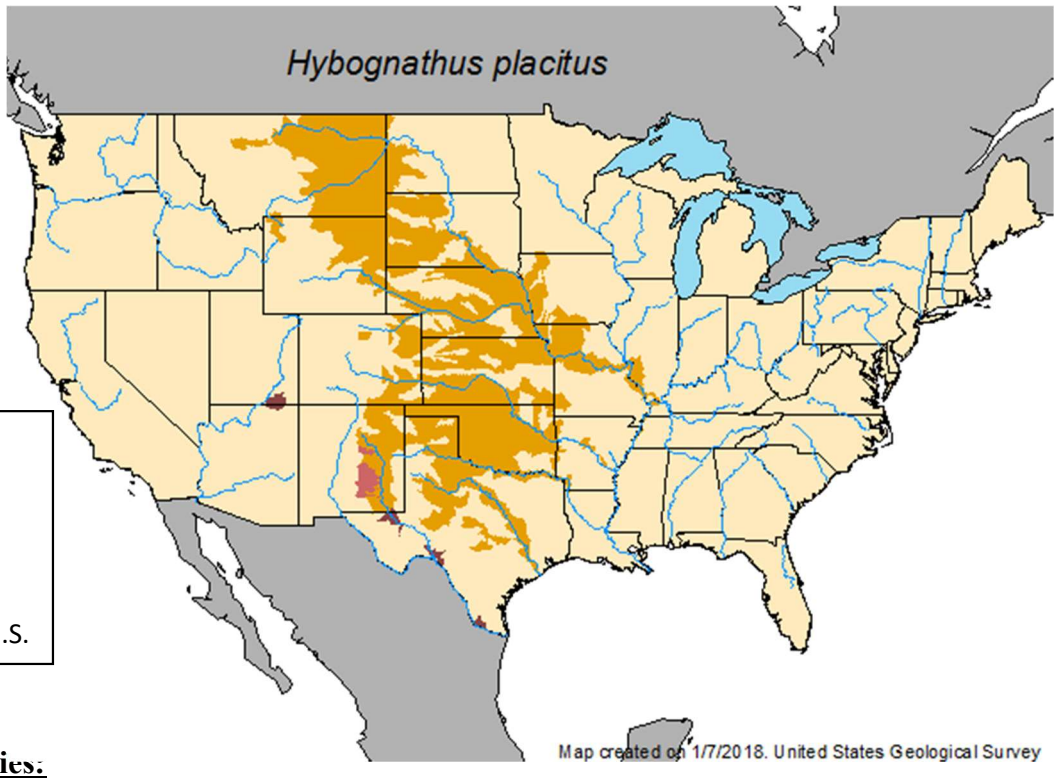
- Inhabit permanent streams and backwaters with sandy substrate and moderate current
- Use deep silty pools, but they can be found also in shallow waters
- In the Missouri Riv., they utilized very slow (mean velocity 0.11 m/sec) and shallow (mean depth 0.5 m) habitats
- Use channels of fluctuating, shallow streams with shifting sand beds
- May use undercut banks for cover
- Require sufficient unimpounded stream length to successfully reproduce, because they have an upstream migratory phase in which they repopulate upstream habitats
- Critical thermal maximum tolerated by the Plains Minnow was slightly >102 °F in lab study
- Tolerant of high salinity (16 ppt) and low dissolved oxygen (2.08 ppm)
- Rapid rise in stream flows following snow melt or spring rains induces spawning
- Receding flows may also trigger spawning
- Fractional spawning extends from spring to late summer
- Water temperature can influence hatch rate
- Reproduction may be most successful early in the season (Apr–early Jul)

Distribution:

- Found throughout streams in the Great Plains east to Missouri
- Native to the western Missouri Basin and have historically been most abundant in the upper Missouri, Red, and Arkansas rivers
- In Neb., occur in most major river systems other than the Blue Riv.



Estimated current range of the Plains Minnow in Nebraska. Map provided by the Nebraska Natural Heritage Program.



The distribution of Plains Minnows, includes streams of the U.S. Great Plains. The species' distribution extends into Canada (not depicted). Map created by Fuller and Nielson (2018) for the U.S.

Factors Affecting the Species:

- Tier 2 at-risk species in Nebraska, but an advisory committee of experts has recommended a revision to recognize it as Tier 1
- A species of greatest conservation need (SGCN) in all states bordering Neb. (WY [Tier 2], CO [Tier 1, state endangered], KS [Tier 1, state threatened], MO and IA), excluding SD
- U.S. Forest Service Sensitive Species
- Historically, the Plains Minnow had been one of the most abundant fishes of the turbid rivers of the Great Plains
- In 1945, Fisher found that they were the most abundant fish in seine samples from the Missouri Riv. near Peru, Neb. to make up 58% of over 4,000 fish sampled
- Plains Minnow has undergone significant recent declines in Neb. and in other parts of its range

- Reservoirs and water extractions have reduced flows and eliminated the spring scour so that now, the central Platte Riv. is a single, deep meandering channel winding its way through dense woodlands.
- In the Missouri Riv., they utilize very slow and shallow habitats, once common, but now nearly absent because of channelization and ongoing loss of fine sediments
- Threats:
    - Declines may result from water diversions for irrigation and flow-regulations for reservoirs
    - Elimination of highly variable water levels, unstable streambeds, and fluctuating water temperatures
    - In the central Platte Riv. system, trees and other undesirable woody vegetation have taken over the wide, shallow, sandy channels
    - Drought, extreme temperatures, ag. runoff, and invasive species (e.g., Common Carp) can negatively impact Plains Minnows
    - Changes including conversion of grassland to rowcrops, construction of dams fragmenting watersheds, and extensive groundwater pumping causing stream dewatering have all caused steady declines in the status of the Plains Minnow
    - Flow regulations that could increase water clarity may lead to increased competition or predation by sight-dependent fish. Flow changes could also impact downstream drift of eggs and young to decrease their viability or increase predation.
    - Sport fishes stocked into impoundments move up and downstream where they prey on small native fish

(viii) For species proposed to be added under this subsection but not for species proposed to be removed under this subsection, developed an outline of the potential impacts, requirements, or regulations that may be placed on private landowners, or other persons who hold state-recognized property rights on behalf of themselves or others, as a result of the listing of the species or the development of a proposed program for the conservation of the species as required in subsection (1) of section 37-807.

<u>Implications</u>:

I. Fisheries regulations Title 163, Chapter 2, 009 already restrict baitfish to specific species.
    A. The collection of state-listed fish species may be allowed with a Scientific and Education Permit issued by the Nebraska Game and Parks Commission.

II. A prohibition already exists against seining or trapping any fish in the streams listed below to prevent take of species currently listed as endangered or threatened
        i. Brush Creek west of Brownlee in Cherry County
        ii. Cottonwood Creek in Keya Paha County
        iii. East Holt Creek in Keya Paha County
        iv. Gordon Creek west of Highway 61 in Cherry County
        v. Holt Creek in Keya Paha County
        vi. Niobrara River east of Box Butte Reservoir and west of Highway 385 in Dawes County
        vii. Taylor Creek west of Highway 81 in Madison County

III. Any project that is permitted, funded, or carried out in part or full by any state agency on public or private land requires that state agency to coordinate with the Nebraska Game and Parks Commission to prevent the "take" (take means to harass, harm, pursue, hunt, shoot, wound, kill,

trap, capture, or collect or attempt to engage in any such conduct) of species on the Nebraska State Threatened or Endangered Species List.

A. Site Specific requirements to prevent "take" of these fish species will be recommended during coordination between the state agency and the Nebraska Game and Parks Commission. Such requirements will only be applicable within or near the modeled distribution of these fishes, and may include, but are not limited to:
    i. New surface water rights (uses) may be limited or reduced.
    ii. Some chemicals which are approved for overwater use may not be acceptable for use in streams with these fish. Guidance documents will be made available.
    iii. Release of piscivorous fish may be prohibited in some areas.
    iv. Work or projects conducted in stream or river channels may not be allowed during the spawning periods of these fish.
    v. Bank stabilization may be limited.
    vi. Grazing (as part of a management plan developed with the assistance of a state agency) along streams where these fish occur may be limited or controlled.
    vii. Upland erosion or soil disturbances will need to be designed to avoid and minimize sedimentation of streams where these fish occur.
    viii. Certain projects (e.g., pond construction) may need to be located outside of the floodplain of streams and rivers.
    ix. Aquatic organism passage will need to be considered for in-stream structures (e.g., culverts, dams, weirs)

<u>Proposed Wildlife Regulation</u>:

004.02 Include Plains Minnow in Table of Threatened Species, Location: Entire