Western Silvery Minnow (*Hybognathus argyritis*) Proposed as Endangered in Nebraska

Description:

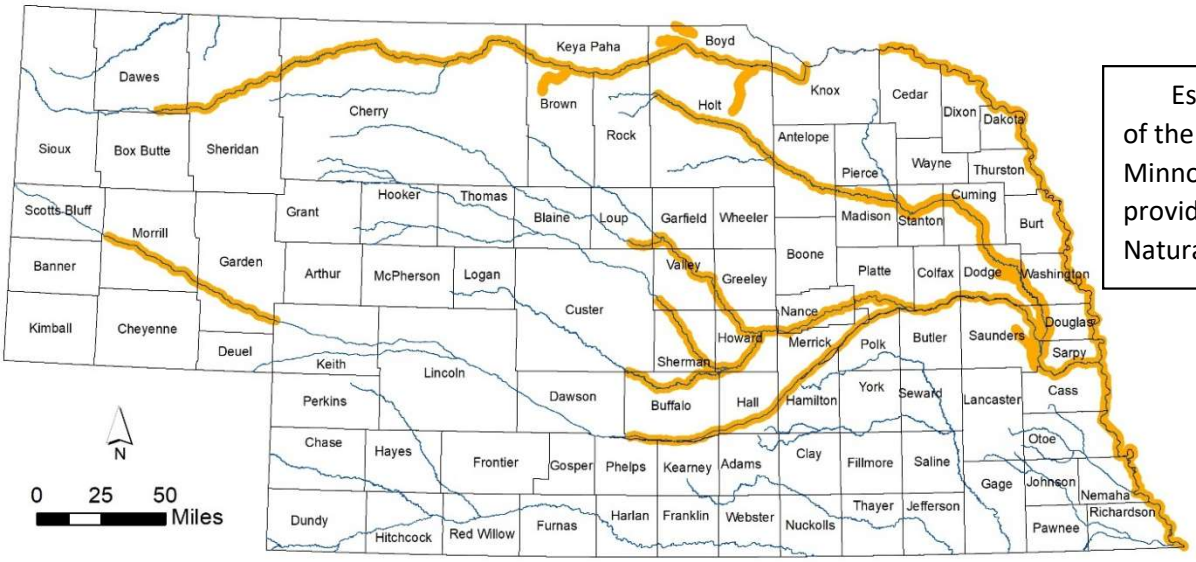
Body is slightly compressed and widest just in front of the dorsal fin. Its sides are silvery-colored or yellowish-white. It may grow >15 cm long.

Habitat:

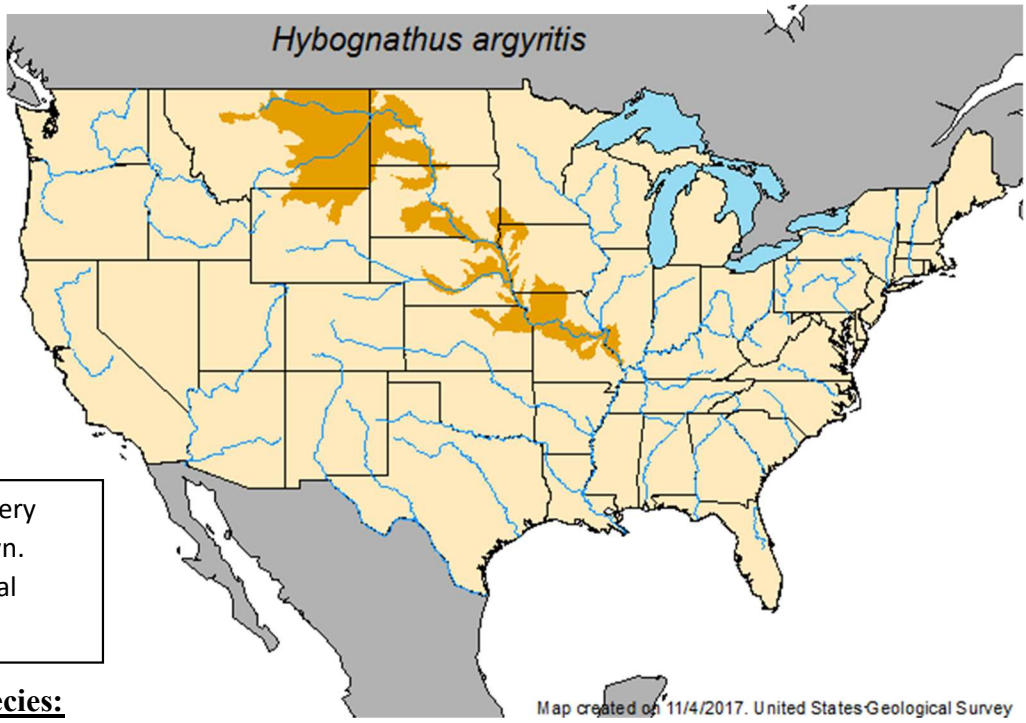
- Inhabit backwaters, pools, and slow-moving waters in medium to large rivers
- In the MO Riv., they utilize very slow (mean velocity 0.1 m/sec) and shallow (mean depth 0.5 m) water
- In the turbid-river guild of fishes
- Rivers they inhabit have fine sandy or silty substrates but no really strong preference for substrate, with gravel being only slightly higher than silt.
- River reaches without impoundments had significantly higher amounts of fine substrate. In WY, they were only found in river reaches without impoundments
- Feeding takes place primarily in calm, shallow backwaters
- Spawning occurs when water levels rise in SP and SU
- Females release non-adhesive eggs where currents are sluggish and substrate is characterized by silt
- Probably a pelagic broadcast spawner that produces semibouyant eggs. If so, Western Silvery Minnows would need long reaches of free-flowing river for their eggs and larvae to develop completely.

Distribution:

- Range includes the MO Riv. basin, from southern Alberta and MT to MO; MS Riv. basin from mouth of MO Riv. to mouth of OH Riv.; South Saskatchewan Riv. (Hudson Bay basin); and extreme southern Alberta
- Found most frequently in the MO Riv. and large tributaries of the plains
- In Neb., they historically inhabited all of the major river systems in the state except the Blue
- Today, they are most closely associated with the MO Riv. system



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



The range of the Western Silvery Minnow in North America is shown. Map created by the U.S. Geological Survey (2018).

Factors Affecting the Species:

- Listed as a species of greatest conservation need in the bordering states of IA, MO, and WY. Listed as threatened in KS.
- In Canada, it is listed by the Committee on the Status of Endangered Wildlife in Canada and is protected under the federal Species at Risk Act (SARA).
- In 1942, Johnson found Western Silvery Minnows to be among the most common small-bodied fish species of the stretch of the MO Riv. through Neb.
- Population declines documented in lower Missouri Riv. after 1940.
- In the 80s, they represented <1% of the catch during surveys in upper and lower unchannelized reaches of the MO Riv.
- 98% loss in the MO Riv. and the species has undergone long-term population and range declines in Neb. and globally
- In the MO Riv., only 5 individuals have been collected from 2003–2012

- Threats:
    - Undergone drastic declines that can be associated positively with anthropogenic river and stream channel modifications
    - Fragmentation and channelization that have altered stream temps. and natural hydrograph
    - Stream modifications dislocated the connection of the MO Riv. to its historic floodplain, thus disrupting ecological processes of the river
    - 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
    - Impoundments alter the downstream sediments, reducing fine content and armoring the river bed, and exotic piscivores introduced into the impoundments enter the river and consume small native fish
    - Impoundments may break the stream segments too short to support successful reproduction
    - Water extractions could have a negative impact
    - Livestock use of the floodplain can degrade shorelines and negatively impact habitat and water quality

(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)

Proposed Wildlife Regulation:

004.01 Include Western Silvery Minnow in Table of Endangered Species, Location: Entire