

Sharpnose Shiners and Smalleye Shiners

(*Notropis oxyrhynchus* and *N. buccula*)

Last updated on: July 15, 2014

Current Status:

- Candidates since 2002
- Proposed for listing as endangered on August 6th, 2013

Description:

- Small minnows (<2 inches) belonging to the Family Cyprinidae.
- Require flowing river water for successful reproduction.
- Prefer shallow river reaches with sandy bottoms.
- Generalist feeders; likely forage in sand and silt when other food items become scarce.



Sharpnose Shiner (Photo credit: Chad Thomas, TSU)



Smalleye Shiner (Photo credit: Chad Thomas, TSU)



Salt Fork of the Brazos River nearly dry bed

(Photo credit: John Morse, USFWS)



Brazos River (Photo credit: John Morse, USFWS)

Reproduction:

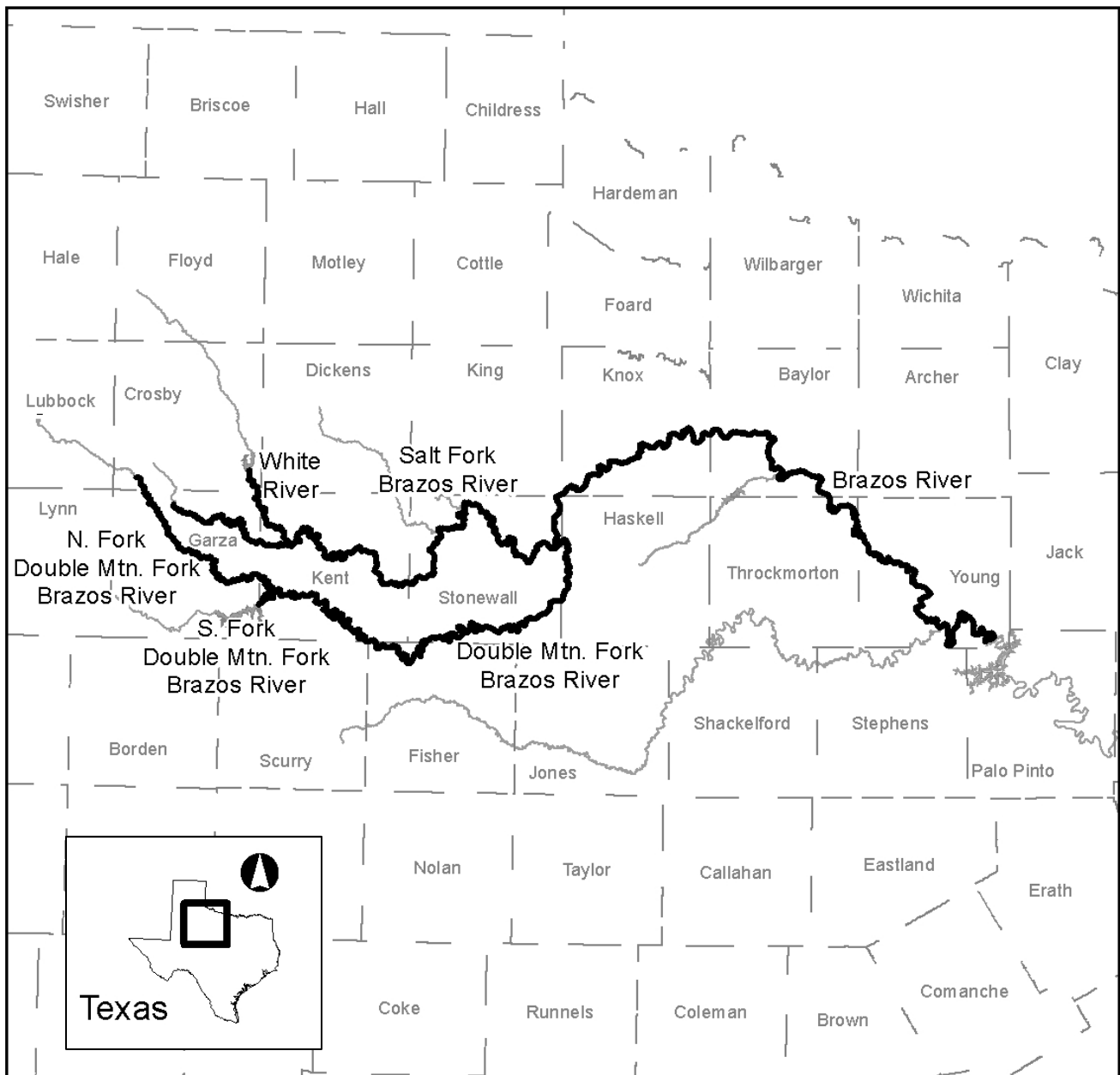
- Maximum life spans of less than three years; most get one reproductive season (Apr – Sept).
- Release eggs and sperm into the water column where fertilization occurs.
- Eggs/larvae require flowing water, otherwise they will sink to the bottom and suffocate.
- Mean annual fecundity is between approximately 400 (1st effort) and 2000 (2nd effort) eggs.
- Spawning synchronizes with increased streamflow events (discharge).
- Minimum average flow of $2.61 \text{ m}^3\text{s}^{-1}$ (sharpnose) and $6.43 \text{ m}^3\text{s}^{-1}$ (smalleye) necessary to sustain a population.
- Based on analyses of similar species, a minimum unimpounded stream reach length of 275 km (171 miles) may be required.

Main Needs for Both Species:

- Riverine habitat of >275 km (171 miles) in length that contains no fish barriers.
- Minimum average spawning season flows of $6.43 \text{ m}^3\text{s}^{-1}$ (smalleye) & $2.61 \text{ m}^3\text{s}^{-1}$ (sharpnose).
- Elevated streamflow events during the spawning season to support synchronized reproductive efforts.
- Sandy substrate, shallow channel.

Species Ranges:

The sharpnose shiner's natural historic range included the Brazos, Wichita, and Colorado Rivers. The smalleye shiner was native to the Brazos River and was likely accidentally introduced to the Colorado River from bait releases. Both species are now confined to the river segments of the Brazos River basin upstream of Possum Kingdom Reservoir (dark black line) as shown in the figure below. This occupied habitat is proposed as critical habitat for both species.



Threats for Both Species:

- Impoundments – altered flow regime, conversion of riverine habitat, fragmentation.
- Saltcedar – deepens, narrows channel; increases flow velocity; may decrease surface water volume; could choke channel and completely restrict flow if conditions worsen.
- Drought – Drought conditions reduce upper Brazos River to isolated, no-flow pools; exacerbated by impoundments that prevent migration to suitable conditions.
- Groundwater withdrawal and other activities that may reduce surface flow rates and volume.
- Water quality degradation – pollution and golden alga blooms can cause direct mortality.
- Commercial harvesting as a bait fish.