

# Shovelnose Sturgeon (*Scaphirhynchus platyrhynchus*)

## Conservation Status Rank Summary

March 6, 2024

For details on assessment and ranking methodology, see: [Conservation Status Assessment Definitions, Process, Rank Factors, and Calculation of State Ranks for Montana Species](#)

### Rarity and Trends

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Rarity</b>					
Range Extent	2024-02-13	Y: 37231.8 km <sup>2</sup>	3.930	MTNHP Range Maps	None
Area of Occupancy	2024-03-06	3036   1km <sup>2</sup> cells	4.130	MTFWP Fish Distribution layer	km linear habitat from MT Fish distribution layer
Number of Occurrences			-		Factor not used in ranking.
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition			-		Factor not used in ranking.
% of Area Occupied in Good Condition			-		Factor not used in ranking.
Environmental Specificity			-		Factor not used in ranking.
Rarity is calculated by averaging weighted factor scores: $( (3.93 \times 1) + (4.13 \times 2) ) / 3 = 4.06$					
<b>Trends</b>					
Short-term Trend	2024-02-16	0.0%	0.000	Expert opinion: FWP Fisheries Biologists	Based on correspondence with FWP biologists populations of Shovelnose Sturgeon in the Missouri River above Fort Peck, Missouri River below Fort Peck, and in the lower Yellowstone River all appear to be stable.
Long-term Trend	2024-02-16		-	Expert Opinion: FWP Fisheries Biologists	Factor not used in ranking. It is unknown how the present shovelnose sturgeon population compares to the population prior to European settlement.
Trends score is calculated by summing weighted short and long-term trend scores: $( (0.00 \times 2) ) = 0.00$					

## Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Threats</b>					
<b>Overall Threat Impact</b>		Low/No Threats	5.500		None
<b>Intrinsic Vulnerability</b>			-		Factor not used in ranking.
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: ( 5.50 ) = 5.50					

### Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
<b>Biological Resource Use</b>	2024-02-16	Low	Small	Slight	High	Quist et al 2002, study suggests shovelnose sturgeon like other sturgeon species worldwide are sensitive to low levels of exploitation. Even low exploitation rates (20%) can reduce maximum lifetime egg production by 74%. Exploitation is not currently a threat in Montana.
Threat Tally: 0 - Very High, 0 - High, 0 - Medium, 1 - Low Overall Threat Impact* = Low/No Threats						

\*See [Conservation Status Assessment Definitions, Process, Rank Factors, and Calculation of State Ranks for Montana Species](#) for calculation of Overall Threat Impact based on the number and impact of individual threats.

## Conservation Status Rank Calculation

### Raw score

Rarity:  $(4.06 \times 70\%)$  + Threats:  $(5.50 \times 30\%)$  + Trends:  $(0.00) = 4.49$

Calculated Rank: S4

<b>Accepted Rank</b>	S4
<b>Date Approved</b>	2025-02-03
<b>Approval Authority</b>	Montana Natural Heritage Program Staff
<b>Rank Justification</b>	Species is widely distributed in eastern Montana river systems, generally stable and faces no significant threats

## Supplementary Information

Montana Natural Heritage Program. 2021. Conservation Status Assessment Definitions, Process, Rank Factors, and Calculation of State Ranks for Montana Species. 18 p.

[https://mtnhp.mt.gov/docs/Montana\\_State\\_Rank\\_Criteria\\_20211201.pdf](https://mtnhp.mt.gov/docs/Montana_State_Rank_Criteria_20211201.pdf)

Montana Field Guide Species Account:

<https://fieldguide.mt.gov/speciesDetail.aspx?elcode=AFCAA02020>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=AFCAA02020>

## Information Needs

Information needs are assessed by considering the availability of factors used to assess species status as well as the quality of these assessments. Current information availability and quality to inform Conservation Status Rank for this species are highlighted.

Rank Factor	Assessment Category	Value	Criteria
<b>General Status</b>	Status Quality	Adequate	Calculated rank has low uncertainty and is represented by a single rank (e.g. S3); accepted rank may be adjusted to a range rank (e.g. S2S3)
		Poor	Rank assessed as SU or calculated rank has notable uncertainty and corresponds to a range rank with 2 or more values (e.g. S2?, S1S3, or S4S5)
<b>Rarity</b>	Range Quality	Adequate	Range polygon adequately represents area of probable occupancy and does not include substantial unoccupied areas; range may be adequately defined and still include areas of unsuitable habitat (e.g. mountain ranges for plains species)
		Marginal	Range polygon defined, but may include or exclude notable areas where the species may or may not occur on the landscape
		Poor	Range polygon not defined
	Habitat Quality	Adequate	Species-habitat relationship is well-defined (e.g. relevant literature or robust habitat model available)
		Marginal	Understanding of species-habitat relationship is adequate among some but not all habitats (e.g. literature covers similar habitats outside of Montana or habitat model performance is only somewhat adequate)
		Poor	Species-habitat relationship is not well understood
<b>Threats</b>	Threat Quality	Adequate	Threat Impact is a single value (including "Unthreatened")
		Marginal	Threat Impact assessed at more than one value (e.g. "High - Medium")
		Poor	Threat Impact is Unknown but Intrinsic Vulnerability is assessed
		Unknown	Threat Impact is Unknown and Intrinsic Vulnerability is not assessed
<b>Trends</b>	Recency	Current	Short-term Trend assessment date less than 10 years old
		Out of Date but Adequate	Short-term Trend assessment date is more than 10 years old or Unknown, but species is Unthreatened
		Out of Date	Short-term Trend assessment date more than 10 years old
		Not Available	Short-term Trend data are not available
	Trend Quality	Sufficient	Short-term Trend assessed at a single value or multiple values with a minimum trend greater than -10% (stable or increasing)
		Unknown but Sufficient	Short-term Trend is Unknown, but species is Unthreatened
		Poor	Short-term Trend is less than -10% (in decline) with two or more values selected
		Unknown	Short-term Trend is Unknown

### Summary of Information Availability

None

### Summary of Information Needs

None

## Additional Threat Details

The table below contains the complete threats assessment for this species. While the Conservation Status Rank Calculation is based on cumulative, broadly categorized (Level 1) threats data, threats are assessed and tracked for more specifically categorized (Level 2) threats when available.

Threat Category	Date Assessed	Assessed By	Data Source	Scope	Severity	Immediacy	Comments
<b>Biological Resource Use - 5.4 - Fishing &amp; Harvesting Aquatic Resources</b>	2024-02-16	Caleb Bollman MT FWP	Quist et al 2002	Small	Slight	High	Quist et al 2002, study suggests shovelnose sturgeon like other sturgeon species worldwide are sensitive to low levels of exploitation. Even low exploitation rates (20%) can reduce maximum lifetime egg production by 74%. Exploitation is not currently a threat in Montana.
<b>Natural System Modifications - 7.2 - Dams &amp; Water Management/Use</b>	2024-02-16	Caleb Bollman MT FWP	Goodman et al 2012, Dryer and Sandvol 1993, USFWS 2000, 2003, MT AFS SOC profiles, USACOE/YRDC 2015	Pervasive	Unknown	High	Goodman et al 2012, Dryer and Sandvol 1993, USFWS 2000, 2003, MT AFS SOC profiles, USACOE/YRDC 2015, Fort Peck Dam has altered habitat in the Missouri River downstream through cold water pollution, nutrient and sediment starvation, and loss of natural hydrograph (i.e., channel forming flows). Yellowtail Dam has altered habitat in the Big Horn River downstream through cold water pollution, nutrient and sediment starvation, and loss of natural hydrograph (i.e., channel forming flows). Yellowtail Dam has also had a downstream summer flow reduction and winter flow increase on the Lower Yellowstone River. Canyon Ferry has altered the temperature, sediment and flow regime of the Missouri River upstream of Fort Peck Dam. Most shovelnose reproduction on the Missouri River above Fort Peck comes out of the Teton (i.e., affected by irrigation withdrawal) and Marias (i.e., affected by Tiber dam operations) and is poor during low flow years and good when these two tributaries have good flow years.
<b>Invasive &amp; Other Problematic Species, Genes &amp; Diseases - 8.2 - Problematic Native Species/Diseases</b>	2024-02-16	Caleb Bollman MT FWP	Tranah et al 2004, Keenlyne et al 1994	Negligible	Extreme	Low	Tranah et al 2004, Keenlyne et al 1994, Hybridization has been observed throughout the range of these related species. The hybridization rates are high in the middle and lower basin where habitat has been more altered than in the upper basin. Few hybrids are observed in Montana and this low level of hybridization may be a natural result for these closely related species. It is not currently viewed as a serious threat.