Shortnose Gar (*Lepisosteus platostomus*)
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
Rarity					
Range Extent	2024-02-20	Y: 9574.8 km²	3.140	MTNHP Range Maps	None
Area of Occupancy	2024-03-06	653 | 1km² cells	3.440	MTFWP Fish Distribution layer	Km from MT fish distribution layer
Number of Occurrences	2024-02-20	5	0.000	MTNHP Databases	None
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	2017-07-16	Moderate	-	MTNHP Species Rank Data Table	**Factor not used in ranking.** We decided that the Shortnose Gar is a broad-scale or diverse habitat generalist or other abiotic and/or biotic factors are used or required by the species, but some key requirements (slow, stagnant areas) are scarce in the generalized range of the species within the area of interest. They seem to handle a variety of turbidities, substrates, and water temperature fluctuations as long as slow, stagnant areas can be found. | Methodology: NS (2003) | Original Score: C
Rarity is calculated by averaging weighted factor scores: **((3.14 × 1) + (3.44 × 2) + (0.00 × 1)) / 4 = 2.51**					
Trends					
Short-term Trend	2024-02-20	[-20.0, 10.0%]	[-0.070, 0.000]	FWP monitoring data	Limited data from 2012-2015 FWP surveys suggest an increase in individuals and greater distribution of gar post-2011 flood events. Unfortunately, small sample size from these surveys inhibits reliable conclusions regarding overall population dynamics or current trends. Angler anecdotal reports, primarily from bow fishermen, suggest fewer gar are present in the Dredge Cuts than in recent years (MFWP unpublished data).

Long-term Trend	2024-02-20		-		**Factor not used in ranking.** Potential that species occupied greater range pre-Fort Peck Dam due to habitat preferences however, no historical collections above dam
Trends score is calculated by summing weighted short and long-term trend scores: **(([-0.07, 0.00] × 2)) = [-0.14, 0.00]**					

Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
Threats					
Overall Threat Impact		Medium	3.670		Diversion dams, dams, pollution, oil spills and introduced species (predation by Smallmouth Bass and Northern Pike on juvenile gar in particular) all represent threats.
Intrinsic Vulnerability	2017-07-16	Not intrinsically vulnerable	-		**Factor not used in ranking.**
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: **(3.67) = 3.67**					

Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
Biological Resource Use	2024-02-20	Medium	Pervasive	Moderate	High	Unknown impacts to Dredge Cut population via bowfishing harvest. Creel estimates suggest ~30 individuals harvested annually (MFWP unpublished data). Riverine individuals (assumed here to be 10% of pop.) are unaffected.
Natural System Modifications	2024-02-20	Low	Small	Slight	High	Suitable habitat in Dredge Cuts where majority of population resides. Gar occupying riverine habitats are at risk of habitat loss from channelization via reduced backwater habitats. Owen (2014) estimated that backwater and side channel habitats have decreased 27% and 76% respectively from 1956-2013.
Pollution	2024-02-20	Low	Pervasive	Slight	High	Severe pollution has potential to negatively impact gar population. Impacts may be buffered by tolerance for marginal water quality (Page and Burr 1991).
Threat Tally: 0 - Very High, 0 - High, 1 - Medium, 2 - Low Overall Threat Impact* = Medium						

*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: (2.51 × 70%) + Threats: (3.67 × 30%) + Trends: ([-0.14, 0.00]) = [2.72, 2.86]

Calculated Rank: S3

Accepted Rank	S3
Date Approved	2024-09-30
Approval Authority	Montana Species of Concern Committee
Rank Justification	Species is rare within range, but appears stable and faces moderate levels of 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

Montana Field Guide Species Account:
https://fieldguide.mt.gov/speciesDetail.aspx?elcode=AFCBA01030

Predicted Suitable Habitat Model:
https://mtnhp.mt.gov/resources/models/?elcode=AFCBA01030

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
General Status	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)
Rarity	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
Threats	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
Trends	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

No further information is needed. Short-term trend could be better characterized

Summary of Information Needs

No further information is needed but continued monitoring is needed to better understand trend.

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	Imme-diacy	Comments
Biological Resource Use - 5.4 - Fishing & Harvesting Aquatic Resources	2024-02-20	Jared Krebs	Expert Opinion	Pervasive	Moderate	High	Unknown impacts to Dredge Cut population via bowfishing harvest. Creel estimates suggest ~30 individuals harvested annually (MFWP unpublished data). Riverine individuals (assumed here to be 10% of pop.) are unaffected.
Natural System Modifications - 7.2 - Dams & Water Management/Use	2024-02-20	Jared Krebs	Owen 2014	Small	Slight	High	Suitable habitat in Dredge Cuts where majority of population resides. Gar occupying riverine habitats are at risk of habitat loss from channelization via reduced backwater habitats. Owen (2014) estimated that backwater and side channel habitats have decreased 27% and 76% respectively from 1956-2013.
Pollution - 9	2024-02-20	Jared Krebs	Paige and Burr 1991	Pervasive	Slight	High	Severe pollution has potential to negatively impact gar population. Impacts may be buffered by tolerance for marginal water quality (Page and Burr 1991).
Climate Change & Severe Weather - 11.1 - Habitat Shifting & Alteration	2024-02-20	Jared Krebs	Expert Opinion	Pervasive	Neutral-Benefit	High	Greater tolerance for high water temperatures than many other MT species. General warming trend may benefit population.