Redside Shiner (*Richardsonius balteatus*)
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			-		Factor not used in ranking.
Area of Occupancy	2024-03-06	2659 | 1km² cells	4.130	MTFWP Fish Distribution layer	km 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: **((4.13 × 2)) / 2 = 4.13**					
Trends					
Short-term Trend	2024-02-20	0.0%	0.000		There are very little data available, even less that is summarized or collected in a consistent manner over time. Flathead Lake netting by FWP is the best dataset. Fall netting shows a slight decline over past 10 years but not significant (R2=0.6). The same nets aren't set each year. Would not put a lot of stock in this data unless it showed a very significant trend. Observations in MNHP database have been stable but variable over past 30 years with a slight increasing trend (not significant) over the past ten years. Redside shiner populations on cabinet gorge and Noxon reservoirs may have declined but data is sparse and not high enough quality to get a reliable trend from (Jasaon Blakney personal communication.
Long-term Trend	2024-02-20	0.0%	0.000		Very little historical data collected consistently. Data available FWP and MNHP does not show a significant increase or decrease. It is likely that predation from non-native predators that have

					been introduced at various time over the past century have severely impacted some populations. It is also possible warming water has favored redside shiners in some waterbodies and expanded range.
Trends score is calculated by summing weighted short and long-term trend scores: **((0.00 × 2) + (0.00 × 1)) = 0.00**					

Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
Threats					
Overall Threat Impact			*-*		*Factor not used in ranking.*
Intrinsic Vulnerability	2024-02-20	Not intrinsically vulnerable	5.500	Expert Opinion	Species reproduces annually and is prolific and has ability to disperse within habiat
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
No individual threats data used in ranking this species						

Conservation Status Rank Calculation

Raw score

Rarity: (4.13 × 70%) + Threats: (5.50 × 30%) + Trends: (0.00) = 4.54

Calculated Rank: S5

Accepted Rank	S5
Date Approved	2025-02-03
Approval Authority	Montana Natural Heritage Program Staff
Rank Justification	Species is distributed across western Montana and populations appear to be stable. Threats are poorly understood

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=AFCJB39010

Predicted Suitable Habitat Model:
https://mtnhp.mt.gov/resources/models/?elcode=AFCJB39010

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
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	Imme-diacy	Comments
Invasive & Other Problematic Species, Genes & Diseases - 8.1 - Invasive Non-Native/Alien Species/Diseases	2024-02-20	Caleb Uerling	None	Pervasive	Unknown	High	Redside shiner is a forage fish for many native and non-native species. Redside shiners are prolific in both lentic and lotic systems in their native range in Montana. Many of these habitats have already been invaded by non-natives but future additional introductions are possible. For instance pike, bass, and perch are prevalent in many waterbodies, but habitat is likely suitable for walleye and other species. Based on limited data non-native sportfish populations do not seem to be having a significant impact on Redside shiner populations right now, but as predator populations expand this could become an issue. (Johnson et al. 2023 and Scarnecchia et al. 2014)
Climate Change & Severe Weather - 11.1 - Habitat Shifting & Alteration	2024-02-20	Caleb Uerling	None	Pervasive	Unknown	High	The Redside shiner is a cold water species that has an optimum temperature that is on the upper end of optimum temperatures for other cold water species (i.e. salmonids). Warming water temperatures will likely favor Redside shiners by expanding habitat range in some areas while reducing available habitat in many habitats that are currently marginal from a thermal perspective. Johnson et al. 2023 completed a bioenergetics model for Redside shiner and found that warmer water temperatures will likely favor Redside shiners over native salmonids. Optimum growth temperature is 18C. However they also found the optimum range to be relatively small, so while warming cold water habitats may favor Redside shiner, currently marginal habitats may quickly become too warm.
No threats data available for this species							