

Western Pygmy Shrew (*Sorex eximius*)

Conservation Status Rank Summary

Date Published: April 20, 2026

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 Factor Rating	Score	Data Source	Comments
Rarity					
Range Extent	2024-09-12	116879.8 km ² F = 20,000-200,000 km ²	3.930	MTNHP Range Maps	None
Area of Occupancy			-		Factor not used in ranking.
Number of Occurrences	2024-09-12	* B = 6 - 20	1.380	MTNHP Databases	39 occurrences likely representing fewer Eos
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2026-04-16	* D = Some (13-40) occurrences with excellent or good viability or ecological integrity	3.300		None
% of Area Occupied in Good Condition			-		Factor not used in ranking.
Environmental Specificity	2018-05-03	Narrow B = Narrow; specialist or community with key requirements common	-	MTNHP Species Rank Data Table	Factor not used in ranking. Mesic areas within forests Methodology: NS (2003) Original Score: B
Rarity is calculated by averaging weighted factor scores: $((3.93 \times 1) + (1.38 \times 1) + (3.30 \times 2)) / 4 = 2.98$					
Trends					
Short-term Trend	2018-05-03	* U = Unknown	-	MTNHP Species Rank Data Table	Factor not used in ranking. No data Methodology: NS (2003) Original Score: U
Long-term Trend	2018-05-03	* U = Unknown	-	MTNHP Species Rank Data Table	Factor not used in ranking. Unknown, species distribution is poorly documented in Montana Methodology: NS (2003) Original Score: U
No trend data used in this rank					

*Values may be absent if not precisely estimated; factors may still be assessed for rank if a Factor Rating can be assigned.

Threats

Rank Factor	Date Assessed	Value Factor Rating	Score	Data Source	Comments
Threats					
Overall Threat Impact		High - Medium BC = High - Medium	[1.830, 3.670]		Species is found in conifer and riparian forested habitats, but its associations and distributions within these habitats are not well understood.
Intrinsic Vulnerability	2018-05-03	Moderately vulnerable B = Moderately vulnerable	-	MTNHP Species Rank Data Table	Factor not used in ranking. Species has relatively large litters, but may only breed once or twice in its lifetime Methodology: NS (2003) Original Score: B
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: ([1.83, 3.67]) = [1.83, 3.67]					

Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
Residential & Commercial Development	2026-04-16	Low	Restricted	Moderate	High	Alteration and conversion of native habitat to housing developments. Species occurs in valley bottoms in northwestern Montana and may be displaced by development in these areas.
Agriculture & Aquaculture	2026-04-16	Low	Restricted	Moderate	High	Alteration and disturbance of native habitat by conversion of native grassland to row crops.
Energy Production & Mining	None	Low	Restricted	Slight	Moderate	Multiple Level 2 threats - see Additional Threat Details below.
Climate Change & Severe Weather	2026-04-16	Medium - Low	Large	Moderate-Slight	Moderate	Climate change causing shifts in bioclimatic envelopes and availability of suitable habitat. Montana is at the southern extent of the species' distribution and a warming climate may impact suitability. Potential impacts are unstudied.
Threat Tally: 0 - Very High, 0 - High, [0,1] - Medium, [3,4] - Low Overall Threat Impact* = High - 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: $(2.98 \times 70\%)$ + Threats: $([1.83, 3.67] \times 30\%)$ + Trends: $(0.00) = [2.63, 3.19]$

Calculated Rank: S3

Accepted Rank	S3
Author(s)	Dan Bachen
Rank Approved By	Montana Species of Concern Committee
State Rank Reason	Species is distributed across northwest Montana and found in portions of the northeastern region of the state, although it may be more widely distributed than currently recognized. It appears to be uncommon to rare within these areas. Trend is unknown. Threats are poorly described.

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=AMABA01120>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=AMABA01120>

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

Species has sufficient rarity data to assess status, but may exist outside of the current known range. Trend and threat data are unavailable.

Summary of Information Needs

Structured surveys are necessary to determine current status and explore population trend for this species. Surveys should be conducted at historic occurrences and in suitable habitat across the species range.

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
No Threat Identified - 0.5 - Unknown/Undetermined Threat	2024-09-12	None	None	None	None	None	None
Residential & Commercial Development - 1.1 - Housing & Urban Areas	2026-04-16	Dan Bachen	SWAP Assessment	Restricted	Moderate	High	Alteration and conversion of native habitat to housing developments. Species occurs in valley bottoms in northwestern Montana and may be displaced by development in these areas.
Agriculture & Aquaculture - 2.1 - Annual & Perennial Non-Timber Crops	2026-04-16	Dan Bachen	SWAP Assessment	Restricted	Moderate	High	Alteration and disturbance of native habitat by conversion of native grassland to row crops.
Energy Production & Mining - 3.1 - Oil & Gas Drilling	2026-04-16	Dan Bachen	SWAP Assessment	Small	Slight	Moderate	Altered native vegetation and fragmentation of native habitat due to infrastructure. Low risk as species has minor overlap with areas of potential development.
Energy Production & Mining - 3.3 - Renewable Energy	2026-04-16	Dan Bachen	SWAP Assessment	Restricted	Slight	Moderate	Fragmentation and reduced habitat quality due to renewable energy infrastructure.
Natural System Modifications - 7.1 - Fire & Fire Suppression	2026-04-16	Dan Bachen	Expert Opinion	Large	Unknown	High	Impacts of fire on this species are poorly understood but may be significant
Pollution - 9.3 - Agricultural & Forestry Effluents	2026-04-16	Dan Bachen	SWAP Assessment	Restricted	Unknown	High	Use of pesticides in agricultural systems deplete invertebrate species on which the shrew is reliant for sustenance. The severity of this threat is unknown.
Climate Change & Severe Weather - 11.1 - Habitat Shifting & Alteration	2026-04-16	Dan Bachen	SWAP Assessment	Large	Moderate-Slight	Moderate	Climate change causing shifts in bioclimatic envelopes and availability of suitable habitat. Montana is at the southern extent of the species' distribution and a warming climate may impact suitability. Potential impacts are unstudied.