Northern Myotis (*Myotis septentrionalis*)
Conservation Status Rank Summary

September 30, 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	2023-12-15	Y: 6361.9 km²	3.140	MTNHP Range Maps	None
Area of Occupancy	2023-12-15	326 | 4km² cells	3.440	MTNHP Modeling	None
Number of Occurrences	2024-05-13	83	4.130	MTNHP Databases	None
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2024-05-13		[0.000, 2.200]	MTNHP Data	WNS appears to be endemic across the species range in MT. it is possible a few hibernacula are not impacted
% 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: **((3.14 × 1) + (3.44 × 2) + (4.13 × 1) + ([0.00, 2.20] × 2)) / 6 = [2.36, 3.09]**					
Trends					
Short-term Trend	2023-12-15		[-0.400, -0.070]		Fewer bats observed during captures on Missouri in 2023 seems like some level of decline is occurring
Long-term Trend	2018-09-24		-0.140	MTNHP Species Rank Data Table, Methodology: NS (2003) | Original Score: D	Habitat has likely declined by more than 25% since European settlement. Species is found in riparian forest along major river drainages. Grazing and non-native species have impacted recruitment of cottonwood and other species within the ecosystem. Conversion of forest to agriculture has reduced roosting and foraging habitat.
Trends score is calculated by summing weighted short and long-term trend scores: **(([-0.40, -0.07] × 2) + (-0.14 × 1)) = [-0.94, -0.28]**					

Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
Threats					
Overall Threat Impact		Very high	0.000		None
Intrinsic Vulnerability			-		Factor not used in ranking.
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: **(0.00) = 0.00**					

Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
Agriculture & Aquaculture	2023-12-15	Low	Pervasive	Slight	High	Riparian forest health is declining due to grazing
Invasive & Other Problematic Species, Genes & Diseases	2023-12-15	Very high	Pervasive	Extreme	High	WNS is found across the species range
Threat Tally: 1 - Very High, 0 - High, 0 - Medium, 1 - Low Overall Threat Impact* = Very high						

*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: ([2.36, 3.09] × 70%) + Threats: (0.00 × 30%) + Trends: ([-0.94, -0.28]) = [0.71, 1.88]

Calculated Rank: S1S2

Accepted Rank	S1S2
Date Approved	2024-09-30
Approval Authority	Montana Species of Concern Committee
Rank Justification	Species is common to rare within riparian forests along major river drainages along the Montana/ North Dakota border. Range extent is uncertain. White-Nose Syndrome has caused the collapse of the majority of populations in central and eastern North America and impacts to the populations within Montana are likely.

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=AMACC01150

Predicted Suitable Habitat Model:
https://mtnhp.mt.gov/resources/models/?elcode=AMACC01150

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

Range of the species may extend beyond the current range polygon. Habitat within range is well understood, but use of coniferous forests remains in question. Threats are well understood, but the impacts of White-Nose Syndrome are poorly defined for the species.

Summary of Information Needs

Surveys adjacent to the current range both within riparian and conifer forests are needed to establish a defensible range for the species and inform conservation efforts. Detection of the species using mist nets is possible, but use of acoustic data to monitor presence is uncertain. Work to establish definitive criteria for call sequences is necessary before these tools are used for monitoring. Targeted monitoring of known sites is necessary to establish trend in a rigorous manner.