

# Little Brown Myotis (*Myotis lucifugus*)

## Conservation Status Rank Summary

September 12, 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	2024-04-22	Y: 380530.8 km <sup>2</sup>	4.710	MTNHP Range Maps	None
Area of Occupancy			-		Factor not used in ranking.
Number of Occurrences	2024-04-22	1309	5.500	MTNHP Databases	None
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2024-05-13		[2.200, 4.400]		About 2/3 of the state is currently WNS positive
% 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: $( (4.71 \times 1) + (5.50 \times 1) + ([2.20, 4.40] \times 2) ) / 4 = [3.65, 4.75]$					
<b>Trends</b>					
Short-term Trend	2024-01-19		[-0.140, -0.070]	NABat	While the exact magnitude of declines due to WNS is unknown, within the impacted area the species is becoming more uncommon with several mortality events noted
Long-term Trend	2024-05-13		[-0.140, -0.070]		Species is beginning to decline due to WNS. Across the state the magnitude of this is unknown
Trends score is calculated by summing weighted short and long-term trend scores: $( ([-0.14, -0.07] \times 2) + ([-0.14, -0.07] \times 1) ) = [-0.42, -0.21]$					

## Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Threats</b>					
<b>Overall Threat Impact</b>		Very high	0.000		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: ( 0.00 ) = 0.00					

### Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
<b>Invasive &amp; Other Problematic Species, Genes &amp; Diseases</b>	2024-01-19	Very high	Pervasive	Extreme	High	White-Nose Syndrome has the potential to cause complete collapse of this species' populations in Montana. Declines in impacted hibernaculum in eastern Montana have approached 100%
Threat Tally: 1 - Very High, 0 - High, 0 - Medium, 0 - 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:  $([3.65, 4.75] \times 70\%) + \text{Threats: } (0.00 \times 30\%) + \text{Trends: } ([-0.42, -0.21]) = [2.14, 3.12]$

Calculated Rank: S2S3

<b>Accepted Rank</b>	S2S3
<b>Date Approved</b>	2024-09-29
<b>Approval Authority</b>	Montana Species of Concern Committee
<b>Rank Justification</b>	Species was common and widespread but White-Nose Syndrome has caused the collapse of populations in endemic areas and will likely cause severe declines across the state

## 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=AMACC01010>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=AMACC01010>

## 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

Information to assess status are generally available.

### Summary of Information Needs

Species is well-suited to acoustic monitoring and data to assess trend have been collected. Acoustic monitoring should continue, and analysis of these data should be prioritized to determine trend as an indices of abundance to inform rank and assess White-Nose Syndrome impacts.

## 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
Invasive & Other Problematic Species, Genes & Diseases - 8.1 - Invasive Non-Native/Alien Species/Diseases	2024-01-19	Dan Bachen	Expert Opinion	Pervasive	Extreme	High	White-Nose Syndrome has the potential to cause complete collapse of this species' populations in Montana. Declines in impacted hibernaculum in eastern Montana have approached 100%