

# Townsend's Big-eared Bat (*Corynorhinus townsendii*)

## 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
<b>Rarity</b>					
Range Extent	2024-01-18	Y: 380530.8 km <sup>2</sup>	4.710	MTNHP Range Maps	None
Area of Occupancy			-		Factor not used in ranking.
Number of Occurrences	2024-01-18	259	4.130	MTNHP Databases	None
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2024-05-13		4.400		Most caves are in good condition
% 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: $((4.71 \times 1) + (4.13 \times 1) + (4.40 \times 2)) / 4 = 4.41$					
<b>Trends</b>					
Short-term Trend	2024-01-18	80.0%	[-0.140, -0.070]		Approximately 20% of abandoned mines have been closed by Montana DEQ. This likely represents a significant loss of habitat for this species.
Long-term Trend	2018-09-26		[-0.070, 0.070]	MTNHP Species Rank Data Table	Habitat is likely stable within +/- 25% since European settlement. Species forages in high clutter environments within forests or brushy areas across the state. It is unlikely that these habitats have changes significantly since European arrival. Roost habitats have likely increased as the species will use mines and buildings in the absence of suitable caves or other rock features.   Methodology: NS (2003)   Original Score: E
Trends score is calculated by summing weighted short and long-term trend scores: $((-0.14, -0.07) \times 2) + ([-0.07, 0.07] \times 1) = [-0.35, -0.07]$					

## Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Threats</b>					
<b>Overall Threat Impact</b>		High	1.830		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: ( 1.83 ) = 1.83					

### Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
<b>Energy Production &amp; Mining</b>	2024-01-18	High	Pervasive	Serious	High	Loss of roost habitat through closure of mines adits and mine collapse is likely to significantly reduce habitat for these animals in the near future
Threat Tally: 0 - Very High, 1 - High, 0 - Medium, 0 - Low Overall Threat Impact* = 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:  $(4.41 \times 70\%)$  + Threats:  $(1.83 \times 30\%)$  + Trends:  $([-0.35, -0.07]) = [3.29, 3.57]$

Calculated Rank: S3S4

<b>Accepted Rank</b>	S3
<b>Date Approved</b>	2024-09-30
<b>Approval Authority</b>	Montana Species of Concern Committee
<b>Rank Justification</b>	Species is widely distributed, but rarely captured or detected. It faces significant threats from loss of roosts in mines due to natural subsidence of adits as well as intentional closure by land managers for public safety. Short-term trend is poorly defined.

## 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=AMACC08010>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=AMACC08010>

## 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

Factors are generally of good quality. Trend is generated from habitat data and has a moderate degree of uncertainty and is not applicable to roosts in natural features. This uncertainty is perpetuated to the status rank.

### Summary of Information Needs

Monitoring to determine short-term trend in abundance or an indices thereof is needed. Species is infrequently detected with acoustics and rarely captured using mist nets placed over water sources. Monitoring of known roosts across the species range would provide sufficient data to clarify trend and establish a more specific rank.