

# Eastern Screech-Owl (*Megascops asio*) Conservation Status Rank Summary

November 14, 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	2024-11-14	Y: 216328.8 km <sup>2</sup>	4.710	MTNHP Range Maps	None
Area of Occupancy	2024-11-14	5348   4km <sup>2</sup> cells	4.810	MTNHP Modeling	None
Number of Occurrences	2024-11-14	63	2.750	MTNHP Point Observation Database	Approximately 60 sites with evidence of Breeding in the MTNHP database
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2024-11-14		3.300		None
% of Area Occupied in Good Condition			-		Factor not used in ranking.
Environmental Specificity	2009-01-20	Narrow	-	MTNHP Species Rank Data Table	Factor not used in ranking. Uses a broad variety of mature deciduous forests, but rely on relatively large nest cavities.   Methodology: NS (2003)   Original Score: B
Rarity is calculated by averaging weighted factor scores: $((4.71 \times 1) + (4.81 \times 2) + (2.75 \times 1) + (3.30 \times 2)) / 6 = 3.95$					
<b>Trends</b>					
Short-term Trend	2024-11-14		-	MTNHP Data	Factor not used in ranking. Although baseline surveys have been conducted in the mid 2010's no trend data are available
Long-term Trend	2024-11-14		[-0.140, -0.070]		None
Trends score is calculated by summing weighted short and long-term trend scores: $((-0.14, -0.07) \times 1) = [-0.14, -0.07]$					

## Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Threats</b>					
<b>Overall Threat Impact</b>		High - medium	[1.830, 3.670]		None
<b>Intrinsic Vulnerability</b>	2009-01-20	Not intrinsically vulnerable	-	MTNHP Species Rank Data Table	Factor not used in ranking. Methodology: NS (2003)   Original Score: C
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
<b>Agriculture &amp; Aquaculture</b>	2024-11-14	Medium	Large	Moderate	High	Loss of riparian forest on private lands due to clearing for agriculture
<b>Natural System Modifications</b>	2024-11-14	High - Medium	Large	Serious-Moderate	High	Lack of cottonwood recruitment due to altered hydrology due to damming and diversion of water on the Missouri and tributaries
Threat Tally: 0 - Very High, [0,1] - High, [1,2] - Medium, 0 - 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:  $(3.95 \times 70\%)$  + Threats:  $([1.83, 3.67] \times 30\%)$  + Trends:  $([-0.14, -0.07]) = [3.17, 3.79]$

Calculated Rank: S3S4

<b>Accepted Rank</b>	S3S4
<b>Date Approved</b>	Date Unknown
<b>Approval Authority</b>	Legacy Assessment: MTNHP Staff
<b>Rank Justification</b>	Species is uncommon within deciduous forest across central and eastern Montana. Current population trend is unknown, and it faces threats from loss of riparian habitat. Specifically impacts on cottonwood recruitment from damming and diverting water in river systems and conversion of forested areas to agriculture.

## 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=ABNSB01030>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=ABNSB01030>

## 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
<b>General Status</b>	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)
<b>Rarity</b>	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
<b>Threats</b>	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
<b>Trends</b>	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

Status is uncertain due to uncertainty of threat impacts and lack of recent trend information. Habitat is well documented.

### Summary of Information Needs

Baseline monitoring was conducted across the state in the mid-2010's. Repeated nocturnal calling surveys should provide estimates of occupancy through time. More study on the impacts of hydrologic changes on cottonwood recruitment as well as the risk of agricultural conversion in proximity to major rivers would provide increased certainty in threat ranking.

## 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
<b>Agriculture &amp; Aquaculture - 2.1 - Annual &amp; Perennial Non-Timber Crops</b>	2024-11-14	Dan Bachen	Expert Opinion	Large	Moderate	High	Loss of riparian forest on private lands due to clearing for agriculture
<b>Natural System Modifications - 7.2 - Dams &amp; Water Management/Use</b>	2024-11-14	Dan Bachen	Expert Opinion	Large	Serious-Moderate	High	Lack of cottonwood recruitment due to altered hydrology due to damming and diversion of water on the Missouri and tributaries