

# Western Toad (*Anaxyrus boreas*)

## Conservation Status Rank Summary

October 8, 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	2024-05-13	Y: 142182.9 km <sup>2</sup>	3.930	MTNHP Range Maps	None
Area of Occupancy	2024-05-13	2740   4km <sup>2</sup> cells	4.810	MTNHP Modeling	None
Number of Occurrences	2024-05-13	478	5.500	MTNHP Databases	None
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2024-05-13	0	0.000		All of the state is assumed to have had Chytrid introduced
% of Area Occupied in Good Condition			-		Factor not used in ranking.
Environmental Specificity	2018-09-25	Narrow	-	MTNHP Species Rank Data Table	Factor not used in ranking. Species needs lentic waterbodies to breed   Methodology: NS (2003)   Original Score: B
<p>Rarity is calculated by averaging weighted factor scores:  <math>( (3.93 \times 1) + (4.81 \times 2) + (5.50 \times 1) + (0.00 \times 2) ) / 6 = 3.18</math></p>					
<b>Trends</b>					
Short-term Trend	2024-06-28		0.000	McEwan and Bachen 2024	Recent range-wide surveys of historic breeding sites found the proportion of sites with breeding differed little from previous efforts in between 2001 and 2004 and 2016. We interpreted these results as evidence of a stable population.
Long-term Trend	2024-10-09		-0.400	MTNHP Species Rank Data Table	Very few sites in drainages with suitable habitat are occupied. State populations are thought to have declined precipitously in the 1980s, possibly due to Chytrid fungus. Robust baseline data are not available to estimate the decline in abundance, but given that 5% of seemingly suitable breeding sites are used within range and often by relatively few individuals, declines of up to 90% seem reasonable.
<p>Trends score is calculated by summing weighted short and long-term trend scores:  <math>( (0.00 \times 2) + (-0.40 \times 1) ) = -0.40</math></p>					

## Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Threats</b>					
Overall Threat Impact		Very high	0.000		Although populations have appeared to stabilize post Chytrid, the threat of further declines remains and may be exacerbated by climate change and degradation and isolation of breeding sites.
Intrinsic Vulnerability	2018-09-25	Moderately vulnerable	-	MTNHP Species Rank Data Table	Factor not used in ranking. Slow maturation but can have high fecundity but low juvenile survival   Methodology: NS (2003)   Original Score: B
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
Invasive & Other Problematic Species, Genes & Diseases	2024-06-28	Very high	Pervasive	Extreme	High	The potential for Chytrid to continue to have impacts on this species is high, particularly as climate and habitat related stressors increase
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:  $(3.18 \times 70\%)$  + Threats:  $(0.00 \times 30\%)$  + Trends:  $(-0.40) = 1.82$

Calculated Rank: S2

<b>Accepted Rank</b>	S2
<b>Date Approved</b>	2018-09-25
<b>Approval Authority</b>	Montana Species of Concern Committee
<b>Rank Justification</b>	Species has declined due to Chytrid Fungus and remains below historic population levels. Population appears stable, but warming temperatures and changing precipitation patterns may exacerbate disease impacts in the future.

## 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=AAABB01030>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=AAABB01030>

## 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 is well studied and all categories have sufficient data to inform status ranking efforts.

### Summary of Information Needs

No additional information needs are recognized at this time. To monitor declines and inform management actions and recovery, monitoring of populations should continue.