

Plains Spadefoot (*Spea bombifrons*) Conservation Status Rank Summary

October 22, 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	2024-10-22	Y: 299511.0 km ²	4.710	MTNHP Range Maps	None
Area of Occupancy	2024-10-22	9718 4km ² cells	4.810	MTNHP Modeling	None
Number of Occurrences			-		Factor not used in ranking.
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition			-		Factor not used in ranking.
% of Area Occupied in Good Condition			-		Factor not used in ranking.
Environmental Specificity	2018-05-03	Moderate	-	MTNHP Species Rank Data Table	Factor not used in ranking. Species requires ephemeral waterbodies and specific soil types. Both are found across much of eastern and central Montana Methodology: NS (2003) Original Score: C
Rarity is calculated by averaging weighted factor scores: $((4.71 \times 1) + (4.81 \times 2)) / 3 = 4.78$					
Trends					
Short-term Trend	2018-05-03		0.000	MTNHP Species Rank Data Table	Species appears to be stable based on repeated detections at some sites. Methodology: NS (2003) Original Score: E
Long-term Trend	2004-01-01		-0.070	MTNHP Species Rank Data Table	Although areas of native habitat have been converted to agriculture and other anthropogenic uses since European settlement, this species appears to make use of areas with a matrix or range and agricultural lands and outside of Montana has been found to increase within cultivated areas. Given this it is unlikely that the available habitat for this species has decreased by more than 25%, and irrigation may simulate precipitation events that this species relies on for reproduction. Methodology: NS (2003) Original Score: E

Trends score is calculated by summing weighted short and long-term trend scores:
 $(0.00 \times 2) + (-0.07 \times 1) = -0.07$

Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
Threats					
Overall Threat Impact		Medium	3.670		None
Intrinsic Vulnerability	2018-05-03	Not intrinsically vulnerable	-	MTNHP Species Rank Data Table	Factor not used in ranking. High fecundity, relatively low age of maturity Methodology: NS (2003) Original Score: C
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: (3.67) = 3.67					

Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
Agriculture & Aquaculture	2024-10-22	Low	Restricted	Moderate	High	Although the species makes use of irrigated field that remain in a semi-natural state, loss of habitat through conversion to row crop agriculture is a threat to the species.
Climate Change & Severe Weather	2024-10-22	Medium	Pervasive	Moderate	High	Increasingly severe droughts may impact habitat suitability for the species. Although it is drought adapted, prolonged dry periods may impact survival and breeding
Threat Tally: 0 - Very High, 0 - High, 1 - Medium, 1 - Low Overall Threat Impact* = 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: $(4.78 \times 70\%)$ + Threats: $(3.67 \times 30\%)$ + Trends: (-0.07) = 4.38

Calculated Rank: S4

Accepted Rank	S4
Date Approved	2018-05-03
Approval Authority	Montana Species of Concern Committee
Rank Justification	Recent nocturnal calling surveys conducted after precipitation events on warm evenings have often detected this species east of the Continental Divide. It appears that the previous perception of rarity was due in part to lack of historical survey effort and difficulty detecting the species during much of the year and in most weather conditions. Given these data, the SOC status can no longer be justified and the rank has been increased to S4.

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=AAABF02010>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=AAABF02010>

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 has adequate data for assessment.

Summary of Information Needs

Continuation of nocturnal calling surveys at regular intervals will provide adequate trend data.

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
Agriculture & Aquaculture - 2.1 - Annual & Perennial Non-Timber Crops	2024-10-22	Dan Bachen	Expert Opinion, WWF Plowprint tool	Restricted	Moderate	High	Although the species makes use of irrigated fields that remain in a semi-natural state, loss of habitat through conversion to row crop agriculture is a threat to the species.
Climate Change & Severe Weather - 11.2 - Droughts	2024-10-22	Dan Bachen	Expert Opinion	Pervasive	Moderate	High	Increasingly severe droughts may impact habitat suitability for the species. Although it is drought adapted, prolonged dry periods may impact survival and breeding.