

# Mountain Plover (*Anarhynchus montanus*)

## 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
<b>Rarity</b>					
Range Extent	2024-10-22	S: 250462.9 km <sup>2</sup>	4.710	MTNHP Range Maps	None
Area of Occupancy	2024-10-22	4934   4km <sup>2</sup> cells	4.810	MTNHP Modeling	None
Number of Occurrences	2024-10-22	285	4.130	MTNHP Databases	None
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2024-10-22		0.000	Expert Opinion	All occurrences face threats
% of Area Occupied in Good Condition			-		Factor not used in ranking.
Environmental Specificity	2011-12-20	Narrow	-	MTNHP Species Rank Data Table	Factor not used in ranking. Narrow specialist. This species requires areas with low cover or that are barren favoring prairie dog towns, which are still widespread.   Methodology: NS (2003)   Original Score: B
Rarity is calculated by averaging weighted factor scores: $((4.71 \times 1) + (4.81 \times 2) + (4.13 \times 1) + (0.00 \times 2)) / 6 = 3.08$					
<b>Trends</b>					
Short-term Trend	2024-10-22		-	MTNHP Data	Factor not used in ranking. Data to assess short-term trend are not available for this species
Long-term Trend	2011-12-20		-0.140	MTNHP Species Rank Data Table	Probably have lost >25% of prairie dog habitat in Montana since European arrival. Historically the species was hunted for meat, although this practice is no longer thought to be a threat to the species persistence. Current North American population estimated at around 8,000-10,000 birds with population in 1975 estimated at 214,200 to 319,220. The U.S. population declined 3.5% or more per year during the 1970s, 1980s, and 1990s with a 2/3rds reduction in population size in the last 25 years.   Methodology: NS (2003)   Original Score: D
Trends score is calculated by summing weighted short and long-term trend scores: $((-0.14 \times 1)) = -0.14$					



## Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Threats</b>					
Overall Threat Impact		Very high - high	[0.000, 1.830]		Habitat loss through loss of prairie dogs, tilled agriculture (especially late seasonal tilled crops), nest disturbance through prairie dog shooting are probably the greatest threats to the species.
Intrinsic Vulnerability	2011-12-20	Not intrinsically vulnerable	-	MTNHP Species Rank Data Table	Factor not used in ranking. Not Intrinsically Vulnerable. Species matures quickly, reproduces frequently, and/or has a high fecundity such that populations recover quickly ( 5 years or 2 generations) from decreases in abundance. Species has good dispersal capabilities such that extirpated populations generally become reestablished through natural recolonization.   Methodology: NS (2003)   Original Score: C
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: ( [0.00, 1.83] ) = [0.00, 1.83]					

### Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
Agriculture & Aquaculture	None	High	Large	Serious	High	Multiple Level 2 threats - see Additional Threat Details below.
Energy Production & Mining	2026-03-19	Low	Restricted	Moderate	Moderate	Habitat fragmentation due to wind and solar energy development
Biological Resource Use	2026-03-19	Low	Large	Slight	High	Shooting (recreational and landowner control) and poisoning of prairie dog colonies indirectly leads to loss of habitat conditions required for breeding MOPL.
Natural System Modifications	2026-03-19	Medium - Low	Large	Moderate-Slight	High	Reduced fire frequency and intensity has created habitat conditions unsuitable for nesting Mountain Plovers. Augustine Derner 2012 recommend prairie dogs in addition to prescribed fire, better than high intensity grazing to promote conditions needed by MOPL
Invasive & Other Problematic Species, Genes & Diseases	2024-10-22	Low	Pervasive	Slight	High	Decline in acreage of prairie dog colonies due to Sylvatic Plague. Increase in exotic grasses/plants outcompete native species and create vegetation conditions unsuitable for mountain plovers.
Climate Change & Severe Weather	2024-10-22	High - Medium	Pervasive	Serious-Moderate	High	Temperature extremes and increased severe weather during the nesting season leading to nest failure
Threat Tally: 0 - Very High, [1,2] - High, 1 - Medium, [3,4] - Low Overall Threat Impact* = Very high - 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:  $(3.08 \times 70\%)$  + Threats:  $([0.00, 1.83] \times 30\%)$  + Trends:  $(-0.14) = [2.01, 2.56]$

Calculated Rank: S2?

<b>Accepted Rank</b>	S2B
<b>Date Approved</b>	Date Unknown
<b>Approval Authority</b>	Legacy Assessment: MTNHP Staff
<b>Rank Justification</b>	Species is an uncommon breeding resident of disturbed steppe across much of central and north central Montana. Is frequently nests on Black-tailed Prairie Dog colonies. Current population trend is unknown. It faces substantial threats from increased spring temperatures and severe weather, removal of prairie dogs from agricultural lands, conversion of native habitats to row crops, and loss of prairie dog towns due to Sylvatic Plague.

## 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=ABNNB03100>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=ABNNB03100>

## 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

Rarity factors are well established. The severity of threats are not well characterized. No recent trend data are available.

### Summary of Information Needs

Trend in prairie dog acreage and repetition of surveys following previous methodologies should give insight into the current population trajectory. Better assessment of climate related impacts will provide more certainty in threats scoring.

## 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>	2024-10-22	Dan Bachen	Expert Opinion, WWF Plowprint tool	Large	Serious	High	Conversion of native habitat to row crops
<b>Agriculture &amp; Aquaculture - 2.3 - Livestock Farming &amp; Ranching</b>	2026-03-19	Dan Bachen	SWAP Assessment	Large	Moderate	High	Current grazing regimes do not promote habitat conditions suitable for nesting Mountain Plovers. Mountain plovers require short vegetation with open bare patches which is difficult to achieve this requirement with just traditional grazing (i.e. cattle). Require other types of disturbance that mimic historical conditions created by bison and prairie dogs (when colonies were much more prevalent and more widely distributed).  Removal of Prairie Dogs by ranchers reduces habitat
<b>Energy Production &amp; Mining - 3.3 - Renewable Energy</b>	2026-03-19	Dan Bachen	SWAP Assessment	Restricted	Moderate	Moderate	Habitat fragmentation due to wind and solar energy development
<b>Biological Resource Use - 5.1 - Hunting &amp; Collecting Terrestrial Animals</b>	2026-03-19	Dan Bachen	SWAP Assessment	Large	Slight	High	Shooting (recreational and landowner control) and poisoning of prairie dog colonies indirectly leads to loss of habitat conditions required for breeding MOPL.
<b>Natural System Modifications - 7.1 - Fire &amp; Fire Suppression</b>	2026-03-19	Dan Bachen	SWAP Assessment	Large	Moderate-Slight	High	Reduced fire frequency and intensity has created habitat conditions unsuitable for nesting Mountain Plovers. Augustine & Derner 2012 recommend prairie dogs in addition to prescribed fire, better than high intensity grazing to promote conditions needed by MOPL
<b>Invasive &amp; Other Problematic Species, Genes &amp; Diseases - 8.1 - Invasive Non-Native/Alien Species/Diseases</b>	2024-10-22	Dan Bachen	Expert Opinion	Pervasive	Slight	High	Decline in acreage of prairie dog colonies due to Sylvatic Plague. Increase in exotic grasses/plants outcompete native species and create vegetation conditions unsuitable for mountain plovers.
<b>Climate Change &amp; Severe Weather - 11.3 - Temperature Extremes</b>	2024-10-22	Dan Bachen	Duchardt et al. 2020	Pervasive	Serious-Moderate	High	Temperature extremes and increased severe weather during the nesting season leading to nest failure