

# Smooth Greensnake (*Opheodrys vernalis*)

## Conservation Status Rank Summary

Date Published: April 15, 2026

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 Factor Rating	Score	Data Source	Comments
<b>Rarity</b>					
Range Extent	2024-10-23	28153.6 km <sup>2</sup> F = 20,000-200,000 km <sup>2</sup>	3.930	MTNHP Range Maps	None
Area of Occupancy	2024-10-23	894   4km <sup>2</sup> cells G = 501-2,500 4-km <sup>2</sup> grid cells	4.130	MTNHP Modeling	None
Number of Occurrences	2025-01-29	54 C = 21 - 80	2.750	MTNHP Databases	None
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2024-10-23	* C = Few (4-12) occurrences with excellent or good viability or ecological integrity	2.200	MTNHP Data	The vast majority of the occurrences of this species are from patches of native habitat within agricultural lands and this fragmentation and degradation likely has an impact on the species
% of Area Occupied in Good Condition			-		Factor not used in ranking.
Environmental Specificity	2018-05-03	Very narrow A = Very narrow; specialist or community with key requirements scarce	-	MTNHP Species Rank Data Table	Factor not used in ranking. Found only in grassland ecosystems with high densities of wetlands within the far north eastern corner of the state   Methodology: NS (2003)   Original Score: A
Rarity is calculated by averaging weighted factor scores: $((3.93 \times 1) + (4.13 \times 2) + (2.75 \times 1) + (2.20 \times 2)) / 6 = 3.22$					
<b>Trends</b>					
Short-term Trend	2024-10-23	* U = Unknown	-	MTNHP Data	Factor not used in ranking. No data on trends are available
Long-term Trend	2024-10-23	* C = Decline of 70 - 80%	-0.310	MTNHP Data	Over 70% of the species known range is now agricultural lands. this decline in habitat likely represents a severe decline in abundance
Trends score is calculated by summing weighted short and long-term trend scores: $((-0.31 \times 1)) = -0.31$					

\*Values may be absent if not precisely estimated; factors may still be assessed for rank if a Factor Rating can be assigned.

## Threats

Rank Factor	Date Assessed	Value Factor Rating	Score	Data Source	Comments
<b>Threats</b>					
Overall Threat Impact		High B = High	1.830		None
Intrinsic Vulnerability	2018-05-03	Moderately vulnerable B = Moderately vulnerable	-	MTNHP Species Rank Data Table	Factor not used in ranking. Moderately Vulnerable. Species exhibits moderate age of maturity, frequency of reproduction, and/or fecundity such that populations generally tend to recover from decreases in abundance within 5-20 years or 2-5 generations. Species has good dispersal ca   Methodology: NS (2003)   Original Score: B
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: <b>( 1.83 ) = 1.83</b>					

### Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
Residential & Commercial Development	2026-04-15	Low	Small	Slight	High	Habitat loss from urban and ex-urban expansion. Expansion of urban areas and cultivated lands result in the direct loss of habitat and mortality for smooth greensnakes and contributes to local population declines.
Agriculture & Aquaculture	2024-10-23	High	Pervasive	Serious	High	Approximately 90% of suitable habitat occurs on private lands, and in an area at high risk for conversion of native prairies to agriculture
Energy Production & Mining	None	Low	Restricted	Moderate	Moderate	Multiple Level 2 threats - see Additional Threat Details below.
Transportation & Service Corridors	2026-04-15	Low	Small	Slight	High	Roads and associated infrastructure contribute to habitat fragmentation and direct mortalities
Biological Resource Use	2026-04-15	Low	Restricted	Moderate-Slight	High	Human persecution from general fear or hatred of snakes. Collection for the pet trade or as pets.
Threat Tally: 0 - Very High, 1 - High, 0 - Medium, 4 - 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:  $(3.22 \times 70\%)$  + Threats:  $(1.83 \times 30\%)$  + Trends:  $(-0.31)$  = 2.50

Calculated Rank: S2

<b>Accepted Rank</b>	S2
<b>Author(s)</b>	Dan Bachen
<b>Rank Approved By</b>	Legacy Assessment: MTNHP Staff
<b>State Rank Reason</b>	The Smooth Green Snake is rarely observed and is only found within or near wetland habitat in far northeastern Montana. Conversion of grassland habitat to cropland threatens the species persistence within the state. Like many other reptiles we do not have data to assess changes in population, occupancy, or distribution over time.

## 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=ARADB47010>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=ARADB47010>

## 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

Most data are available, but short-term trend is not

### Summary of Information Needs

Regular surveys of known occurrences and in suitable habitat within and outside of the current range would provide a baseline for future trend monitoring.

## 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>Residential &amp; Commercial Development - 1.1 - Housing &amp; Urban Areas</b>	2026-04-15	Dan Bachen	SWAP Assessment	Small	Slight	High	Habitat loss from urban and ex-urban expansion. Expansion of urban areas and cultivated lands result in the direct loss of habitat and mortality for smooth greensnakes and contributes to local population declines.
<b>Agriculture &amp; Aquaculture - 2.1 - Annual &amp; Perennial Non-Timber Crops</b>	2024-10-23	Dan Bachen	MTNHP Data and WWF Plowprint tool	Pervasive	Serious	High	Approximately 90% of suitable habitat occurs on private lands, and in an area at high risk for conversion of native prairies to agriculture
<b>Energy Production &amp; Mining - 3.1 - Oil &amp; Gas Drilling</b>	2026-04-15	Dan Bachen	SWAP Assessment	Restricted	Moderate	Moderate	Habitat degradation and fragmentation from development of oil & gas and associated infrastructure. Portions of the species range and potential range overlap areas that are or maybe developed for extraction
<b>Energy Production &amp; Mining - 3.3 - Renewable Energy</b>	2026-04-15	Dan Bachen	SWAP Assessment	Restricted	Moderate	Moderate	Habitat degradation and fragmentation from footprint of renewable energy and associated infrastructure. Not referenced in SWAPs, but would expect the same impacts from infrastructure of renewable energy as oil and gas (road mortality)
<b>Transportation &amp; Service Corridors - 4.1 - Roads &amp; Railroads</b>	2026-04-15	Dan Bachen	SWAP Assessment	Small	Slight	High	Roads and associated infrastructure contribute to habitat fragmentation and direct mortalities
<b>Biological Resource Use - 5.1 - Hunting &amp; Collecting Terrestrial Animals</b>	2026-04-15	Dan Bachen	SWAP Assessment	Restricted	Moderate-Slight	High	Human persecution from general fear or hatred of snakes. Collection for the pet trade or as pets.