Idaho Giant Salamander (*Dicamptodon aterrimus*)
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	2024-10-07	Y: 939.7 km²	1.570	MTNHP Range Maps	None
Area of Occupancy	2024-10-07	87 | 4km² cells	2.750	MTNHP Modeling	None
Number of Occurrences	2024-10-07	13	1.380	MTNHP Databases	None
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	Very narrow	-	MTNHP Species Rank Data Table	**Factor not used in ranking.** Species is found only in cold mountain streams in a small region of Idaho and Montana | Methodology: NS (2003) | Original Score: A
Rarity is calculated by averaging weighted factor scores: **((1.57 × 1) + (2.75 × 2) + (1.38 × 1)) / 4 = 2.11**					
Trends					
Short-term Trend	2024-10-22		0.000	USFS 2024	Recent surveys using eDNA methods have found evidence of continued occupancy of streams where the species was previously detected
Long-term Trend	2024-10-22		-0.070		None
Trends score is calculated by summing weighted short and long-term trend scores: **((0.00 × 2) + (-0.07 × 1)) = -0.07**					

Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
Threats					
Overall Threat Impact		High	1.830		Canopy removal; alteration of stream substrates, reduction of snow pack and streamflow.
Intrinsic Vulnerability	2018-05-03	Moderately vulnerable	-	MTNHP Species Rank Data Table	**Factor not used in ranking.** Moderate age of maturity and relativly high fecundity but presumably low survival | Methodology: NS (2003) | Original Score: B
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: **(1.83) = 1.83**					

Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
Residential & Commercial Development	2026-03-03	Low	Restricted	Moderate-Slight	High	Recreation sites along streams contribute to impaired water quality through increased sediment entering stream channels; increased chances of introduced pollutants that may be toxic to salamanders and/or their food base (e.g., trash, human and pet waste, vehicle runoff); increased risk of direct mortalities due to crushing from vehicles; increased risk of disease introduction; and increased habitat disturbance, including the introduction of invasive plant and animal species.
Transportation & Service Corridors	2026-03-03	Medium	Large	Moderate	High	Roads, associated infrastructure, and maintenance along streams and in the headwaters of streams contributes to impaired water quality, habitat degradation, habitat fragmentation, and direct mortalities.
Human Intrusions & Disturbance	2026-03-03	Low	Pervasive	Slight	High	People handling amphibians could introduce diseases, toxins and/or stress them. Moving amphibians to new locations could affect survival.
Natural System Modifications	2024-10-22	High	Large	Serious	High	Species appears to be adapted to natural disturbance regimes including fire (Sepulveda and Lowe 2009). Whether or not this represents a threat to the species in Montana is unknown.
Invasive & Other Problematic Species, Genes & Diseases	2026-03-03	Medium	Pervasive	Moderate	High	Spread of non-native fish (e.g., brown trout, rainbow trout, brook trout) and the introduction of fish to naturally fishless areas, introduces predators that may prey on species more than native fish and creates competition

						for food resources for all life stages.Use of piscicides to remove non-native fish can be toxic to multiple life stages of this species.Introduction and spread of Didymosphenia geminata would degrade water quality, reduce prey base, and likely impact important microsites for reproduction.
Climate Change & Severe Weather	2024-10-07	High	Pervasive	Serious	High	Warming water temperatures and loss of stream habitat due to drought
Threat Tally: 0 - Very High, 1 - High, 0 - Medium, 0 - 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: (2.11 × 70%) + Threats: (1.83 × 30%) + Trends: (-0.07) = 1.96

Calculated Rank: S2

Accepted Rank	S2
Date Approved	2006-07-01
Approval Authority	Montana Species of Concern Committee
Rank Justification	Species is found in a restricted area of western Montana along and adjacent to the Idaho border. Occupancy of historic streams appears stable. It faces threats from warming water temperatures and the impacts of timber harvest and fire are unknown.

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=AAAAH01030

Predicted Suitable Habitat Model:
https://mtnhp.mt.gov/resources/models/?elcode=AAAAH01030

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

Information to assess current status is generally good.

Summary of Information Needs

Continued monitoring of populations at regular intervals will provide data to assess trend. Information on impacts of forest management and fire is not available and if possible these should be explored.

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	Imme-diacy	Comments
Residential & Commercial Development - 1.3 - Tourism & Recreation Areas	2026-03-03	Dan Bachen	SWAP Assessment	Restricted	Moderate-Slight	High	Recreation sites along streams contribute to impaired water quality through increased sediment entering stream channels; increased chances of introduced pollutants that may be toxic to salamanders and/or their food base (e.g., trash, human and pet waste, vehicle runoff); increased risk of direct mortalities due to crushing from vehicles; increased risk of disease introduction; and increased habitat disturbance, including the introduction of invasive plant and animal species.
Transportation & Service Corridors - 4.1 - Roads & Railroads	2026-03-03	Dan Bachen	SWAP Assessment	Large	Moderate	High	Roads, associated infrastructure, and maintenance along streams and in the headwaters of streams contributes to impaired water quality, habitat degradation, habitat fragmentation, and direct mortalities.
Biological Resource Use - 5.3 - Logging & Wood Harvesting	2024-10-22	Dan Bachen	Expert Opinion	Restricted	Unknown	High	Timber harvest and associated consstruction of access roads may present a threat to the species, but the severity of this threat is unstudied.
Human Intrusions & Disturbance - 6.1 - Recreational Activities	2026-03-03	Dan Bachen	SWAP Assessment	Pervasive	Slight	High	People handling amphibians could introduce diseases, toxins and/or stress them. Moving amphibians to new locations could affect survival.
Natural System Modifications - 7.1 - Fire & Fire Suppression	2024-10-22	Dan Bachen	Sepulveda and Lowe 2009	Large	Serious	High	Species appears to be adapted to natural disturbance regimes including fire (Sepulveda and Lowe 2009). Whether or not this represents a threat to the species in Montana is unknown.
Invasive & Other Problematic Species, Genes & Diseases - 8.1 - Invasive Non-Native/Alien Species/Diseases	2026-03-03	Dan Bachen	SWAP Assessment	Pervasive	Moderate	High	Spread of non-native fish (e.g., brown trout, rainbow trout, brook trout) and the introduction of fish to naturally fishless areas, introduces predators that may prey on species more than native fish and creates competition for food resources for all life stages.Use of piscicides to remove non-native fish can be toxic to multiple life stages of this species.Introduction and spread of Didymosphenia geminata would degrade water quality, reduce prey base, and likely impact important microsites for reproduction.
Invasive & Other Problematic Species, Genes & Diseases - 8.4 - Problematic Species/Diseases of Unknown Origin	2026-03-03	Dan Bachen	SWAP Assessment	Unknown	Unknown	Unknown	Bsal could cause widespread mortality or morbidity. However, Bsal mostly affects newts and lungless salamanders. Fungus thrives in cool temperatures.

Pollution - 9.3 - Agricultural & Forestry Effluents	2026-03-03	Dan Bachen	SWAP Assessment	Unknown	Unknown	High	Herbicide/pesticide runoff from forest management activities (e.g., weed treatments) introduces toxins to water and may impact prey base for all life stages of IGS.Flame retardant chemicals used in fire suppression efforts can contaminate streams and surrounding uplands.
Climate Change & Severe Weather - 11.2 - Droughts	2024-10-07	Dan Bachen	Expert Opinion	Pervasive	Serious	High	Warming water temperatures and loss of stream habitat due to drought