Montana's 2025 State Wildlife Action Plan

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State Wildlife Action Plan (SWAP)

- ROADMAP – for conserving the fish, wildlife, and habitats of Greatest Conservation Need in Montana
- As the state wildlife agency, FWP is the lead on drafting the plan but…
- Comprehensive conservation cannot be achieved without partners
- SWAP = Montana's SWAP – at it's best it will inform conservation work for all partners

- 2025 SWAP is the most comprehensive, science-based, partner driven planning process ever completed for the state.

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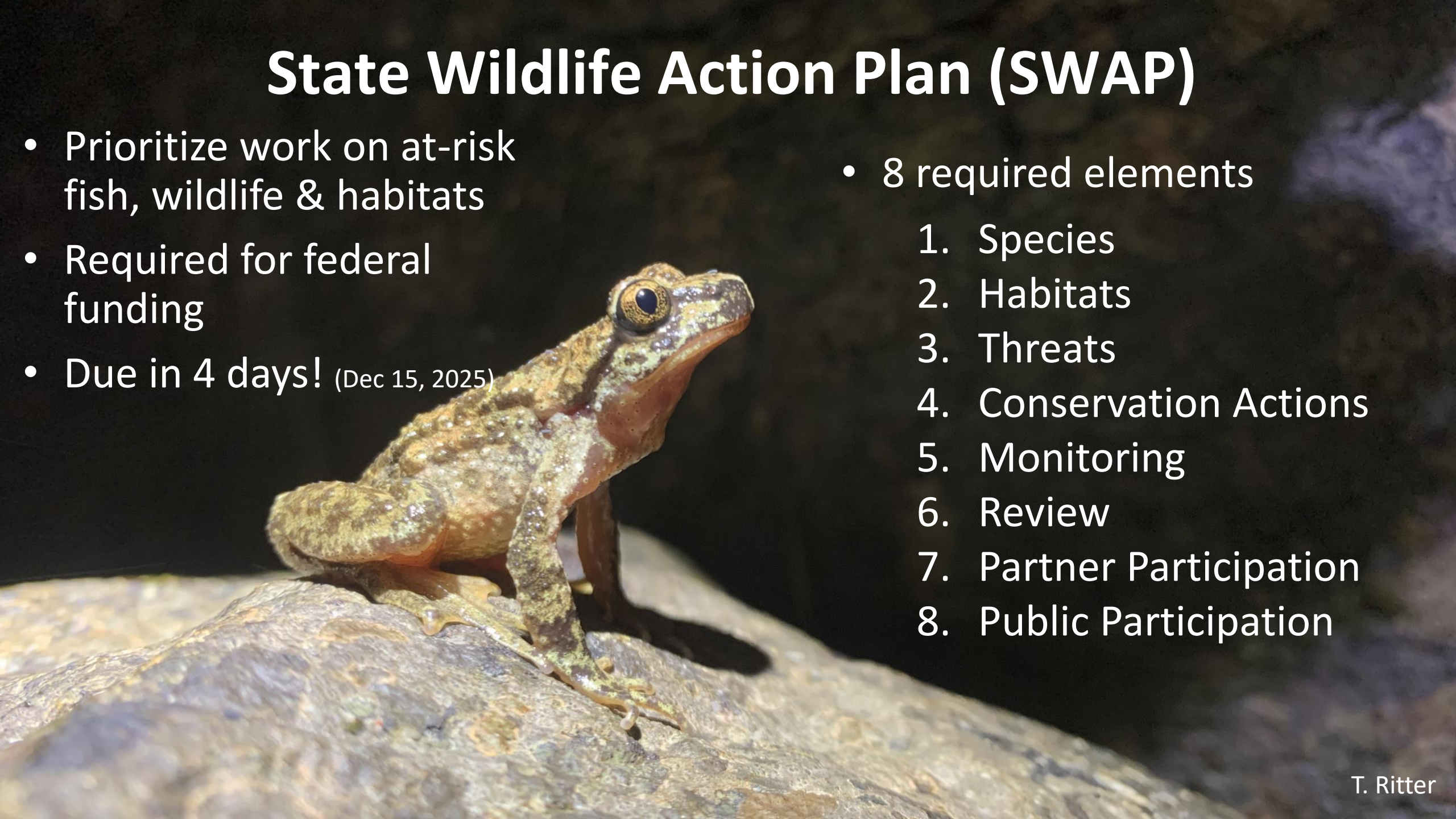
State Wildlife Action Plan (SWAP)

- Prioritize work on at-risk fish, wildlife & habitats
- Required for federal funding
- Due in 4 days! (Dec 15, 2025)

- 8 required elements
  1. Species
  2. Habitats
  3. Threats
  4. Conservation Actions
  5. Monitoring
  6. Review
  7. Partner Participation
  8. Public Participation



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SWAP Table of Contents

CHAPTER 1: INTRODUCTION
- 1.1 Purpose of the SWAP
- 1.5 Summary of Significant Changes in the SWAP
- 1.6 How to Use the SWAP

CHAPTER 2: HABITATS OF GREATEST CONSERVATION NEED
- 2.2 Terrestrial HGCN
- 2.3 Aquatic HGCN

CHAPTER 3: SPECIES OF GREATEST CONSERVATION NEED
- 3.3 Vertebrates
- 3.4 Terrestrial Invertebrates
- 3.5 Aquatic Invertebrates
- 3.6 Plants

CHAPTER 4: SPECIES OF GREATEST INFORMATION NEED

CHAPTER 5: THREATS & CONSERVATION ACTIONS
- * ~300 pages of HGCN and SGCN tables

CHAPTER 6: FOCAL AREAS*

CHAPTER 7: ECOSYSTEM ENGINEERS
- 6.2 North American Beaver
- 6.3 Pileated Woodpecker
- 6.4 Prairie Dogs

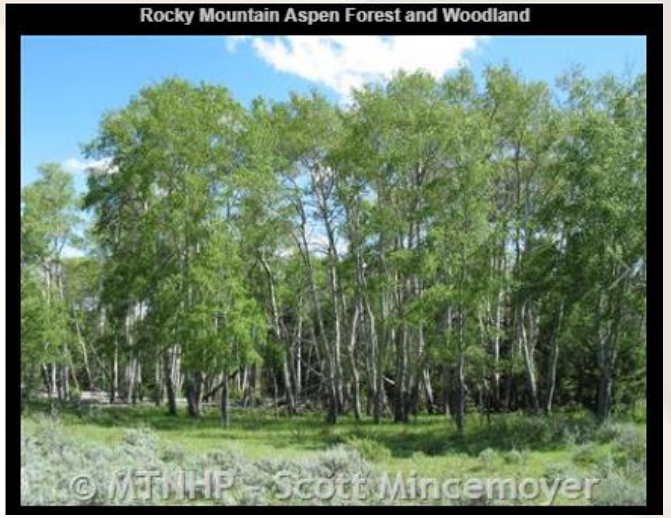
CHAPTER 8: WILDLIFE CONNECTIVITY
CHAPTER 9: WILDLIFE DISEASES
CHAPTER 10: WILDLIFE VIEWING AND EDUCATION
CHAPTER 11: MONITORING
CHAPTER 12: RESEARCH & INFORMATION NEEDS*
CHAPTER 13: REVIEW & REVISION
CHAPTER 14: PARTNER & PUBLIC INVOLVEMENT

Chapter is a “bonus” * Chapter is in progress
SWAP - 586 pages

Habitats of Greatest Conservation Need

Experts identified 52 habitats

- Grasslands (4)
- Shrublands (4)
- Forest & Woodlands (7)
- Wetland and Riparian (all 17)
- Aquatic – rivers & lakes (20)



28 Terrestrial HGCN

Grassland

1. Rocky Mountain Low Elevation – Dry Grasslands
2. Great Plains Dry Mixedgrass Prairie
3. Great Plains Mesic Mixedgrass Prairie
4. Great Plains Sand Prairie

Shrubland

5. Lowland - Montane Shrubland
6. Mountain Mahogany Woodland & Shrubland
7. Basin & Wyoming Big Sagebrush Shrubland
8. Mountain Big Sagebrush Shrubland

Forest & Woodland

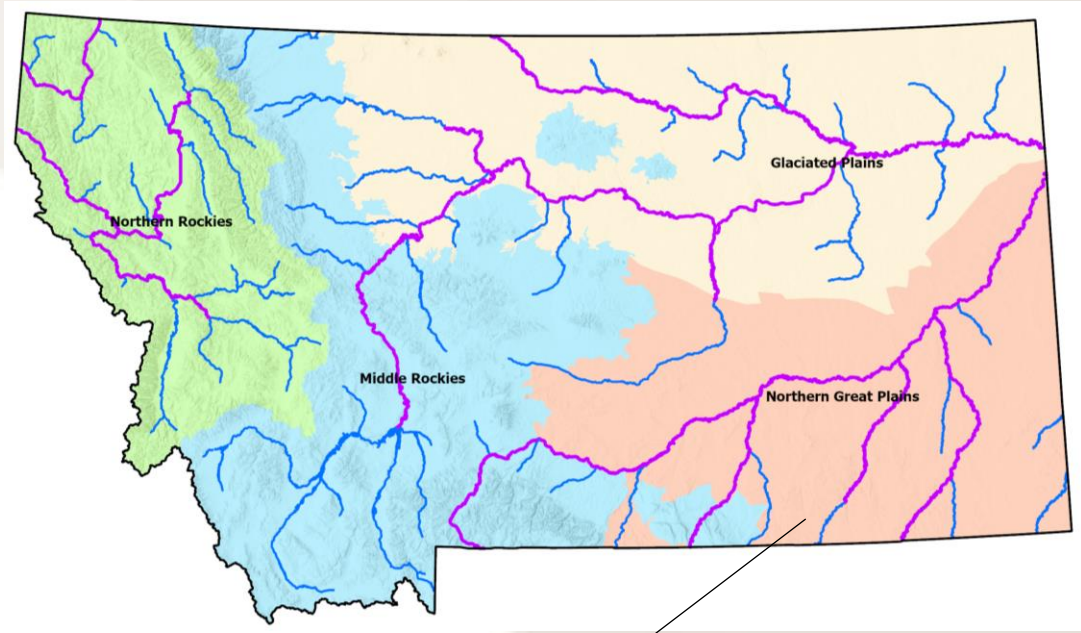
9. Great Plains Aspen Forest & Woodland
10. Great Plains Mesic Forest & Woodland
11. Rocky Mountain Aspen Forest & Woodland
12. Great Plains Ponderosa Pine Forest & Woodland
13. Rocky Mountain Ponderosa Pine Forest & Woodland
14. Cedar - Hemlock Forest
15. Whitebark Pine - Subalpine Larch Forest & Woodland

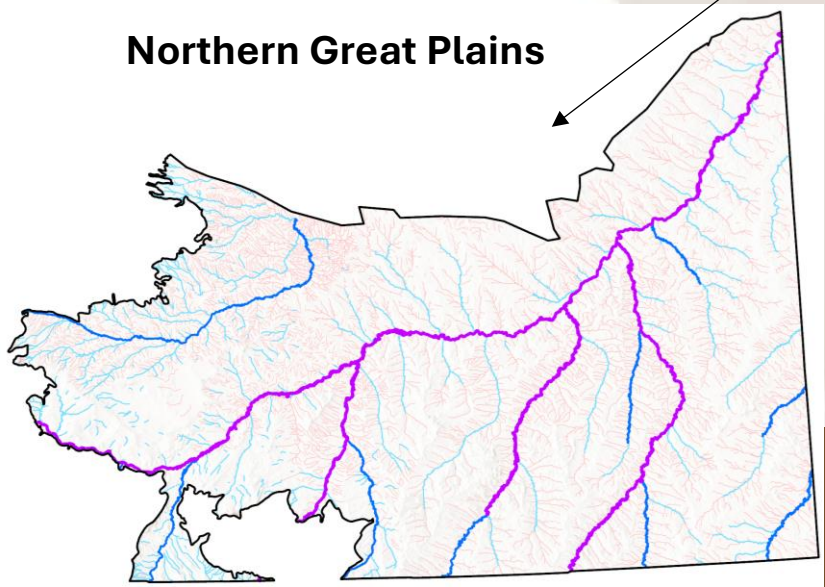
Riparian & Wetland

16. Intermountain Alkaline - Saline Grassland & Meadow
17. Great Plains Saline Marsh & Wet Meadow
18. Greasewood Shrubland
19. Alpine - Subalpine Herbaceous & Dwarf-Shrub Riparian & Wetland
16. Great Plains Alkaline Fen
17. Rocky Mountain Acidic Fen
18. Rocky Mountain Alkaline Fen
19. Great Plains Floodplain Forest
20. Lowland - Montane Riparian Deciduous Forest
21. Montane - Subalpine Riparian Forest
22. Montane Forested Wetland
23. Lowland - Montane Riparian Shrubland
24. Montane - Subalpine Riparian & Seep Shrubland
25. Great Plains Floodplain Shrubland & Herbland
26. Arid West Freshwater Marsh & Wet Meadow
27. Great Plains Wet Meadow, Marsh & Shrub Swamp
28. Montane Wet Meadow & Marsh

20 Aquatic HGCN

1. Northern Rockies Large Perennial River
2. Northern Rockies Medium Perennial River
3. Northern Rockies Small Perennial Stream
4. Northern Rockies Small Intermittent Stream
5. Northern Rockies Small Alpine and Subalpine Stream
6. Middle Rockies Large Perennial River
7. Middle Rockies Medium Perennial River
8. Middle Rockies Small Perennial Stream
9. Middle Rockies Small Intermittent Stream
10. Middle Rockies Small Alpine and Subalpine Stream
11. Glaciated Plains Large Perennial River
12. Glaciated Plains Medium Perennial River
13. Glaciated Plains Small Perennial Stream
14. Glaciated Plains Small Intermittent Stream
15. Northern Great Plains Large Perennial River
16. Northern Great Plains Medium Perennial River
17. Northern Great Plains Small Perennial Stream
18. Northern Great Plains Small Intermittent Stream
19. Large Lake
20. Large Reservoir





Habitats of Greatest Conservation Need

Montana Field Guide

https://fieldguide.mt.gov/

New

Terrestrial HGCN

Aquatic HGCN

Home - Other Field Guides

Ecological Communities

The ecological communities guide contains accounts for three major types of ecological communities:

1. *Natural vegetation communities occurring in Montana as described under the National Vegetation Classification scheme at the Group level;*
2. *Aquatic communities occurring in flowing (lotic) and standing (lentic) waters of different sizes, flow regimes and geographic regions;*
3. *Areas recently disturbed by fire and insect outbreaks or that are heavily modified from natural vegetation communities by introduced vegetation or intensive human land uses such as crop agriculture and development of human structures.*

National Vegetation Classification Groups
Alpine
Forest and Woodland
Shrubland
Grassland
Sparse and Barren
Wetland and Riparian
Aquatic Communities
Open Water
Other Land Cover
Recently Disturbed or Modified
Human Land Use

Lowland - Montane Shrubland

Global Name: *Central Rocky Mountain Montane-Foothill Shrubland*

Image Copyright and Usage Information

Global Rank: G4G5
State Rank: S4S5

(see reason below)

External Links

NatureServe Ecological Systems | Google for more Images | Google for more Web Pages

State Rank Reason

This habitat has been altered or lost due to development, grazing practices, invasive species and severe wildfires. However, the type is still relatively common, widespread and resilient.

General Description

This National Vegetation Classification Group is dominated by deciduous shrubs at low to mid elevations. It is found in the foothills and montane zone of all mountainous areas across the state. Patches sizes are generally small. These communities occur in relatively warm, dry, upland habitats and may be dominated or co-dominated by the following shrubs: Serviceberry (*Amelanchier alnifolia*), Ninebark (*Physocarpus malvaceus*), Chokecherry (*Prunus virginiana*), Oceanspray (*Holodiscus discolor*), Bitter Cherry (*Prunus emarginata*), Smooth Sumac (*Rhus glabra*), Skunkbush Sumac (*Rhus trilobata*), Woods' Rose (*Rosa woodsii*), and Common Snowberry (*Symphoricarpos albus*). These shrublands often occur below treeline, within the matrix of surrounding low-elevation grasslands and sagebrush shrublands. They also occur in the ponderosa pine and Douglas-fir zones, but rarely up into the subalpine zone, where they are restricted to warm, dry sites and southerly exposures. Trees if present within the community are widely scattered. These shrublands occur on all aspects. These communities also develop near talus slopes as garlands, at the heads of dry drainages, and toeslopes in the moist shrub-steppe and steppe zones. Fire, flooding and erosion all impact these shrublands, but they typically will persist on sites for long periods.

This group incorporates the Rocky Mountain Lower Montane-Foothill Shrubland Ecological System as well as a portion of the Rocky Mountain Montane-Foothill Deciduous Shrubland Ecological System.

Range

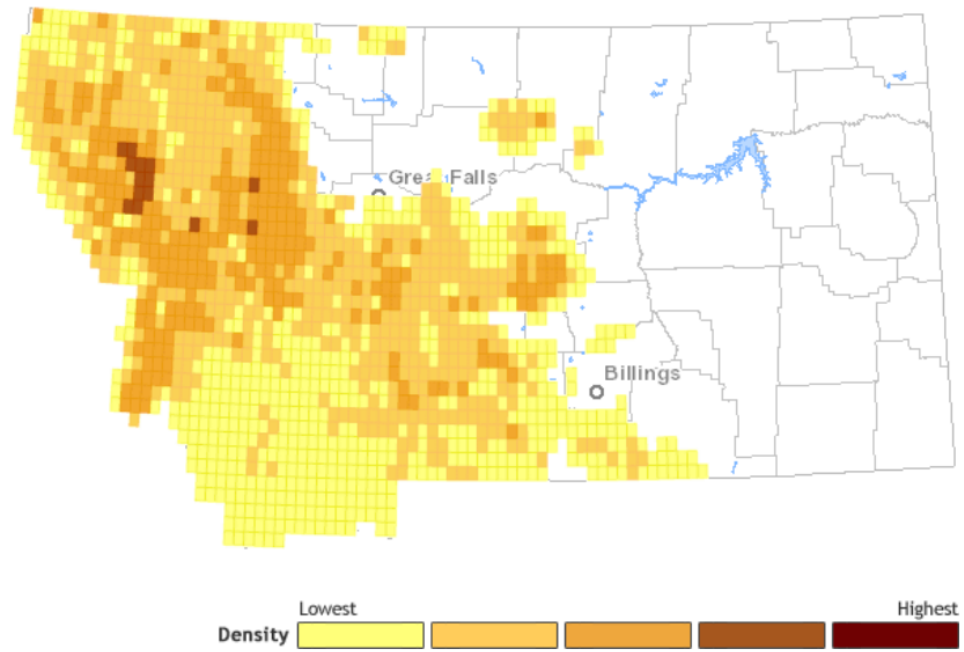
In Montana, these communities occur throughout the mountainous portions of the state, both east and west of the Continental Divide. It extends as far east as the Little Rockies, the Little Snowies and the Wolf Mtns in Big Horn County.

In MT, G272 occurs within these Level III Ecoregions: 15 (Northern Rockies), 16 (Idaho Batholith), 17 (Middle Rockies), 41 (Canadian Rockies) and western portions of 42 (Northwestern Glaciated Plains) and 43 (Northwestern Great Plains).

In Montana, G272 occurs within these Major Land Resource Areas: 43A - Northern Rocky Mountains and 43B - Central Rocky Mountains, 44A - Northern Rocky Mountain Valleys, and 46 - Northern and Central Rocky Mountain Foothills.

Density and Distribution

Based on 2025 land cover layer. Grid on map is based on USGS 7.5 minute quadrangle map boundaries.



Mapped Distribution by County

Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Cascade, Chouteau, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Wheatland, Yellowstone

Based on 2025 land cover layer.

Spatial Pattern

Small Patch and Large Patch

SGCN Selection

NatureServe's standardized conservation status ranking

Vertebrate Species of Greatest Information Need Criteria

1. State conservation status rank of S1, S2, or S3.
2. State conservation status rank of S4 for which Montana has a high stewardship responsibility for the species because a substantial portion (≥10%) of the species' global population or range is in Montana.

SGCN Selection

INVERTEBRATES	Criteria
Terrestrial Invertebrate SGCN	1. State conservation status rank of S1 or S2. 2. Global conservation status rank of G1, G2, or G3 that were nominated by taxonomic experts.
Aquatic Invertebrate SGCN	1. State conservation status rank of S1 or S2.

PLANTS – pulled directly from Plant Conservation Strategy

1. Vascular plants with a state conservation **status rank of S1, S2, or S3** that lack taxonomic problems or large locational ambiguity and that either:
   a. Face a **direct or indirect threat** as determined by the Montana State Threat Score.
   b. Are **associated** with a Unique Habitat of **Greatest Conservation Need** [a] or Plant Community of Greatest Conservation Need [a].
   c. Are poorly documented or have **information needs**.
2. Vascular plants with a state conservation status rank of **S3S4, S4, or S5** that were nominated by several partners representing different agencies as being **"of management concern"** because the species is facing significant threats or potential decline.

SGIN Selection

- Changes from 2015 SWAP
  - Species of Greatest **Information** Need
  - Species is SGCN or SGIN – not both

- SGIN – species that lack info to assess status or management needs
  - Population size, distribution, trend, or threats
  - Lack baseline surveys
  - Outdated surveys
  - Lack life history traits or habitat associations
  - Declining in its range outside of Montana
  - Species status is SU or we have low confidence in the existing rank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	SGCN	SGIN	TOTAL
Amphibians	7	0	7
Birds	83	12	95
Fish	23	11	34
Mammals	31	14	45
Reptiles	10	0	10
Aquatic Invertebrates	56	26	82
Terrestrial Invertebrates	57	35	92
Plants	109	0	109
TOTAL	**376**	**98**	**474**


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Threats and Conservation Actions for HGCN & SGCN

- Teams identified Threats and drafted Actions for all 154 vertebrates and taxa tables for inverts & plants
- Conservation Measures Partnership Actions Classification (CMP Version 2.0)
- Formal system for categorizing Threats (11) and Actions (10)

Level 1 "Threat Categories"	Level 2 "General Threats"
1 Residential & Commercial Development Human settlements or other non-agricultural land uses with a substantial footprint	**1.1 Housing & Urban Areas** Human cities, towns, and settlements including non-housing development typically integrated with housing
	1.2 Commercial & Industrial Areas Factories and other commercial centers
	1.3 Tourism & Recreation Areas Tourism and recreation sites with a substantial footprint
2 Agriculture & Aquaculture Threats from farming and ranching as a result of agricultural expansion and intensification, including silviculture and aquaculture	**2.1 Annual & Perennial Non- Timber Crops** Crops planted for food, fodder, fiber, fuel, or other uses
	2.2 Wood & Pulp Plantations Stands of trees planted for timber or fiber outside of natural forests, often with non-native species
	2.3 Livestock Farming & Ranching Domestic terrestrial animals raised in one location on farmed or non-local resources (farming); also domestic or semi-domesticated animals allowed to roam in the wild and supported by natural habitats (ranching)
	2.4 Marine & Freshwater Aquaculture Aquatic animals raised in one location on farmed or non-local resources; also hatchery fish allowed to roam in the wild
3 Energy Production & Mining Threats from production of non-biological resources	**3.1 Oil & Gas Drilling** Exploring for, developing, and producing petroleum and other liquid hydrocarbons
	3.2 Mining & Quarrying Exploring for, developing, and producing minerals and rocks
	3.3 Renewable Energy Exploring, developing, and producing renewable energy (except hydropower)

Level 1 "Action Categories"	Level 2 "General Actions"
A. Target Restoration/Stress Reduction Actions These actions lead directly to changes in conservation targets without first reducing threats or creating enabling conditions.	
1 Land/Water Protection Actions directly managing or restoring sites, ecosystems and the wider environment	**1.1 Site/Area Stewardship** Enhancing viability / mitigating stresses for sites and/or ecosystem targets, especially on a smaller scale
	1.2 Ecosystem & Natural Process (Re)Creation Restoring missing or severely degraded ecosystems and ecosystem functions and processes, especially on a large scale
2 Species Management Actions directly managing or restoring specific species or taxonomic groups	**2.1 Species Stewardship** Enhancing viability of/ mitigating stresses to specific taxa within their current range
	2.2 Species Re-introduction & Translocation Transferring species or genetic material to places where they formerly occurred or to suitable future habitat or benign introductions of species to an ecosystem
	2.3 Ex-situ Conservation Protecting specific taxa in artificial settings with the aim of ultimately restoring them to their natural settings
B. Behavioral Change/Threat Reduction Actions These actions either change human behaviors that threaten conservation targets or enhance human behaviors that contribute to conservation.	
3 Awareness Raising Actions making people aware of key issues and/or feeling desired emotions, leading to behavior change	**3.1 Outreach & Communications** Promoting desired awareness and/or emotions and subsequent behavior change by providing information to target audiences through appropriate channels
	3.2 Protests & Civil Disobedience Promoting desired awareness and subsequent desired behavior change by conducting protests, naming and shaming, civil disobedience, or sabotage activities

114 professionals helped develop threats & conservation actions

Name	Agency	Name	Agency	Name	Agency	Name	Agency
Kevin Ellison	American Bird Conservancy	Bo Crees	Montana Audubon/Montana Natural Heritage Program	Kate Stone	MPG Ranch	Ron Torretta	U.S. Forest Service
Carl Brown	Biodiversity Research Institute	Jeff Marks	Montana Bird Advocacy	Erin Fairbank	Northern Great Plains Joint Venture	Scott Jackson	U.S. Forest Service
Angela Dwyer	Bird Conservancy of the Rockies	Paul Hendricks	Montana Bird Advocacy	Eric Atkinson	Northern Rockies Conservation Cooperative/Northwest College	TJ Fontaine	U.S. Forest Service
Molly McDevitt	Blackfoot Challenge	Susan Lenard	Montana Department of Transportation	Beth Mendelsohn	Owl Research Institute	Zackary Poetzsch	U.S. Forest Service
Andrew Oestreich	Bureau of Land Management	Clint Smith	Montana Fish, Wildlife & Parks	Denver Holt	Owl Research Institute	Barb Pitman	U.S. Forest Service (retired)
Christina Stuart	Bureau of Land Management	Cody Nagel	Montana Fish, Wildlife & Parks	Shawn Cleveland	Paul Smith's College	Jeff DiBenedetto	U.S. Forest Service (retired)
David Wood	Bureau of Land Management	Jim Dunnigan	Montana Fish, Wildlife & Parks	Ali Marschner	Pheasants Forever	Pat Braaten	U.S. Geological Survey, Columbia Environmental Research Center
Dillon Moes	Bureau of Land Management	Jim Olsen	Montana Fish, Wildlife & Parks	Shaun McCabe	Pheasants Forever	Dustin Toy	U.S. Geological Survey, Northern Prairie Wildlife Research Center
Fiona Petersen	Bureau of Land Management	Kelvin Johnson	Montana Fish, Wildlife & Parks	T. David Ritter	Ritter Designs	Rose Swift	U.S. Geological Survey, Northern Prairie Wildlife Research Center
Heather Nenninger	Bureau of Land Management	Kristina Harkins	Montana Fish, Wildlife & Parks	Kayhan Ostovar	Rocky Mountain College	Blake Hossack	U.S. Geological Survey, Northern Rocky Mountain Science Center
Jesse Hankins	Bureau of Land Management	Ladd Knotek	Montana Fish, Wildlife & Parks	Andy Boyce	Smithsonian's National Zoo and Conservation Biology Institute	Brian Tornabene	U.S. Geological Survey, Northern Rocky Mountain Science Center
Katie Phillips	Bureau of Land Management	Lindsey Parsons	Montana Fish, Wildlife & Parks	Bryan Bedrosian	Teton Raptor Center	Peter Billman	University of Connecticut
Maggie Sain	Bureau of Land Management	Matt Jaeger	Montana Fish, Wildlife & Parks	Katherine Gura	Teton Raptor Center	Courtney Conway	University of Idaho
Matthew Comer	Bureau of Land Management	Mikel Newberg	Montana Fish, Wildlife & Parks	Anna Kurtin	Texas Parks and Wildlife Department	David Tevs	University of Montana
Mike Borgreen	Bureau of Land Management	Nathan Kluge	Montana Fish, Wildlife & Parks	Kelsey Molloy	The Nature Conservancy	Erim Gómez	University of Montana
Amy Seglund	Colorado Parks and Wildlife	Ryan Rauscher	Montana Fish, Wildlife & Parks	Carly Lewis	U.S. Fish & Wildlife Service	Hannah Sipe	University of Montana
Art Soukkala	Confederated Salish and Kootenai Tribes	Ryan Sylvester	Montana Fish, Wildlife & Parks	Colleen Moulton	U.S. Fish & Wildlife Service	Holli Holmes	University of Montana
Cara Thompson	Confederated Salish and Kootenai Tribes	Ryan Williamson	Montana Fish, Wildlife & Parks	Jeff Berglund	U.S. Fish & Wildlife Service	Kerry Foresman	University of Montana (retired)
Corey Anco	Draper Natural History Museum	Kristi DuBois	Montana Fish, Wildlife & Parks (retired)	Jenny Sika	U.S. Fish & Wildlife Service	Anna Noson	University of Montana Bird Ecology Lab
Brent Mitchell	Flathead Audubon Society	Lynn Kelly	Montana Loon Society	Marisa Sather	U.S. Fish & Wildlife Service	Maggie Blake	University of Montana Bird Ecology Lab
Jami Belt	Glacier National Park	Alexis McEwan	Montana Natural Heritage Program	Mike McGrath	U.S. Fish & Wildlife Service	Tricia Rodriguez	University of Montana Bird Ecology Lab
John Waller	Glacier National Park	David Willey	Montana State University	Scott Somershoe	U.S. Fish & Wildlife Service	Kyle Richardson	University of Montana Western
Lisa Bate	Glacier National Park	Justine Becker	Montana State University	Brad Andres	U.S. Fish & Wildlife Service (retired)	Michelle Anderson	University of Montana Western
Cory Mosby	Idaho Department of Fish and Game	Lance McNew	Montana State University	Allison Stringer	U.S. Forest Service	Niall Clancy	University of Wyoming
Joel Sauder	Idaho Department of Fish and Game	Sarah Bassing	Montana State University	Daniel Tyers	U.S. Forest Service	Benjamin Turnock	Washington Department of Fish and Wildlife
Tempe Regan	Idaho Department of Fish and Game	Elizabeth Leipold	Montana State University	Dean Pearson	U.S. Forest Service	Michael Atamian	Washington Department of Fish and Wildlife
Jay Carlisle	Intermountain Bird Observatory, Boise State University	Rachel Dines	Montana State University	Forrest Parks	U.S. Forest Service	Frank Stetler	Wyoming Game and Fish Department
Stephen Dinsmore	Iowa State University	Frank Szollosi	Montana Wildlife Federation	Jessica Swanson	U.S. Forest Service	Zach Wallace	Wyoming Game and Fish Department

Threats and Conservation Actions for HGCN & SGCN

- Teams submitted 6000 threats & actions
- 296 pages of tables
- All Threats and Actions are linked -> actionable
- Hierarchical structure for tables:
  - All HGCN
    - All Terrestrial HGCN
      - Grassland
      - Shrubland, etc.
    - Aquatic HGCN (2)
  - SGCN
    - All taxa for vertebrates (amphibians, birds, etc).
    - Individual vertebrate species
    - All Aquatic Invertebrates
    - All Terrestrial Invertebrates
    - All Plants – draw directly from the Montana Native Plant Conservation Strategy: Vascular Species and Habitats of Greatest Conservation Need (Pipp et al. 2024).

HGCN Threats and Actions Tables

All Terrestrial HGCN

Threats and Actions Applicable to All Terrestrial HGCN

Action Classification	Action	Threat Classification	Threat
1. Land/Water Protection			
1.1 Site/Area Stewardship	Create and maintain adequate buffers adjacent to patches of intact HGCN to avoid or minimize human disturbance, impacts of pollutants, and access by grazing animals. Maintain corridors of native vegetation through converted habitat to facilitate movement among HGCN patches.	2.1 Annual & Perennial Non-Timber Crops	Intensive agricultural production, including habitat conversion for agriculture can degrade and fragment habitat.
		2.3 Livestock Farming & Ranching	Grazing practices that are not reflective of the natural grazing regimes for which native plant and animal communities are adapted can degrade habitat through overbrowing and trampling.
		4.1 Roads & Railroads	Transportation corridor use, construction, maintenance, and expansion.
		7.3 Other Ecosystem Modifications	Incompatible vegetation management, including timber harvest, and/or lack of vegetation management.
		9.1 Household Sewage & Urban Waste Water	Urban and transportation runoff and contamination changes nutrient cycling.
		9.2 Industrial & Military Effluents	Commercial and industrial effluents.
		9.3 Agricultural & Forestry Effluents	Pesticide, herbicide, and fertilizer use, runoff and contamination.
1.1 Site/Area Stewardship	Remove encroaching conifers where they threaten HGCN and use techniques like prescribed burning to maintain restored habitats.	8.2 Problematic Native Plants & Animals	Conifer encroachment and in-growth.
1.2 Ecosystem & Natural Process	Use prescribed fire and direct vegetation management (e.g., timber harvest) under adaptive	7.1 Fire & Fire Suppression	Altered fire regimes lead to unnatural fire frequency and severity; Fire suppression leads

Threats and Actions Applicable to Grasslands

1.2 Ecosystem & Natural Process (Re)Creation	Implement regenerative grazing practices that mimic natural grazing disturbance regimes and maintain or enhance soil health.	2.3 Livestock Farming & Ranching	Grazing practices that are not reflective of the natural grazing regimes for which native plant and animal communities are adapted can degrade habitat through overbrowing and trampling.
1.2 Ecosystem & Natural Process (Re)Creation	When conducting restoration in grassland, utilize seed mixes that reflect declining viability of C3 grasses relative to C4. Refer to spatial models to understand where risk is greatest.	11.2 Changes in Geochemical Regimes	Increased CO_2 levels may favor greater dominance of C4 species (many noxious weeds) in HGCN.
		11.3 Changes in Temperature Regimes	Rapid curing and reduced growing season reduces forage quality due to hot and dry conditions.
3. Awareness Raising			
3.1 Outreach & Communications	Increase awareness of ecosystem services provided by grasslands and economic tradeoffs of grassland conversion. Educate consumers on products that support healthy grasslands and people.	2.1 Annual & Perennial Non-Timber Crops	Conversion of pasture, hay fields, rangeland, and native grassland systems to crops.
3.1 Outreach & Communications	Increase educational efforts on the benefits of burrowing mammals to grassland habitats and ways landowners and land managers can control or live with these species in ways that minimize impacts to HGCN.	5.1 Take & Collection of Terrestrial Animals	Excessive removal of prairie dogs, ground squirrels, and gophers reduces soil aeration, water infiltration, and seed dispersal and reduces prey base for some SGCN.
		6.1 Recreational Activities	Recreational use of public lands including motorized and non-motorized use of waterways, trails, and roads and the management of those sites can impact HGCN.
		9.3 Agricultural & Forestry Effluents	Pesticide, herbicide, and fertilizer use, runoff and contamination.

SGCN Threats and Actions Tables

Amphibians

Threats and Conservation Actions for All Amphibians

See individual species tables for additional, species-specific threats and conservation actions.

Action Classification	Action	Threat Classification	Threat
1. Land/Water Protection			
1.1 Site/Area Stewardship	Implement and promote measures to prevent the spread of potentially dangerous pathogens. Respond to site-specific detections of amphibian chytrid fungus and Bsal to prevent spreading.	8.4 Pathogens & Microbes	Amphibian chytrid fungus, Bsal, and red-leg disease can impact populations or directly kill individuals.
2. Species Management			
2.1 Species Stewardship	Work with fisheries biologists to remove non-native fish or control their populations where appropriate and feasible, and to minimize any impacts of piscicides/rotenone on SGCN.	7.2 Dams & Water Management / Use	Habitat fragmentation from dams and irrigation diversions. Reservoirs can create suitable habitat for invasive non-native predators and are hot spots for non-native predator introduction. Irrigation withdrawals reduce habitat suitability, connectivity and cause entrainment.
		8.1 Invasive Non-Native/Alien Plants & Animals	Competition with and predation by non-native fish species.
3. Awareness Raising			
3.1 Outreach & Communications	Promote messaging about the dangers of spreading aquatic invasive species and preventative measures (e.g., 'Clean, Drain, Dry'). Work with fisheries staff, fishing guides, and other users of waterbodies to consistently disinfect gear to prevent the spread of disease (e.g., amphibian chytrid fungus), identify fish/amphibian die offs, and collect samples if warranted.	8.4 Pathogens & Microbes	Amphibian chytrid fungus, Bsal, and red-leg disease can impact populations or directly kill individuals.

Coeur d'Alene Salamander Threats and Conservation Actions

See Threats and Conservation Actions – All Amphibians for additional threats and conservation actions.

Action Classification	Action	Threat Classification	Threat
1. Land/Water Protection			
1.1 Site/Area Stewardship	Refrain from conducting prescribed burns during active movement seasons in known salamander range.	7.1 Fire & Fire Suppression	Wildfires and prescribed fires alter and/or fragment habitat, which can result in increased erosion and sedimentation that could destroy subterranean refugia, lead to individual or sub-population mortalities, and impede movement between sites. Commonly used fire retardants may be toxic to salamanders.
5. Livelihood Economic & Moral Incentives			
5.2 Better Products & Management Practices	Avoid or minimize road construction upstream within 328 ft (100 m) of known salamander occurrences and ensure that roads are at least 100 ft (30 m) from waterways.	4.1 Roads & Railroads	Road infrastructure and maintenance along streams and headwaters can cause water quality issues, habitat degradation and fragmentation, and direct mortalities.
	Buffer known reproductive sites from timber projects and trail/road construction.	5.3 Logging & Wood Harvesting	Loss of or disruption to sites critical to survival or reproductive success.
	Conduct clearance surveys.	3.2 Mining & Quarrying	Disturbance from construction and daily operations causes localized extirpation and reduces the quantity and quality of continuous habitat.

SGCN Species Profile & Threats and Actions Table

Western Toad

Anaxyrus boreas

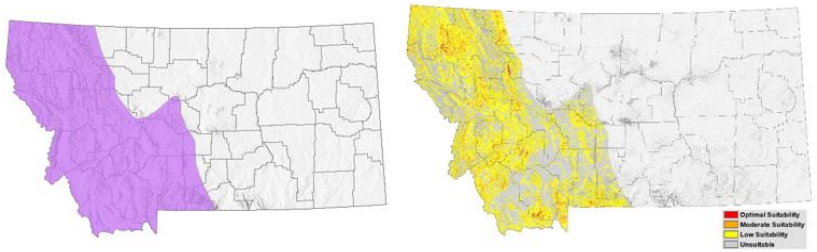
State Rank: S2 | Global Rank: G4

Full species account can be accessed at:
https://fieldguide.mt.gov/speciesDetail.aspx?elcode=AAABB01030

Management Plan: [manually add link if exists]

Habitat Associations: Forest and Woodland, Shrubland, and Wetland and Riparian

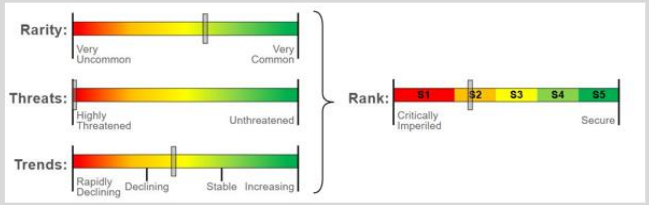
Stewardship Responsibility: Predicted area of suitable habitat for this species is 58% Federal, 5% State, <1% Local, 5% Conservation Lands/Easements, and 31% Private/Tribal/Unknown.



Western Toad (*Anaxyrus boreas*) Conservation Status Summary

Review Date = 10/08/2024

How Conservation Status is Calculated



See the complete Conservation Status Report

Western Toad Threats and Conservation Actions

No species-specific threats and conservation actions; see Threats and Conservation Actions – All Amphibians.

AND

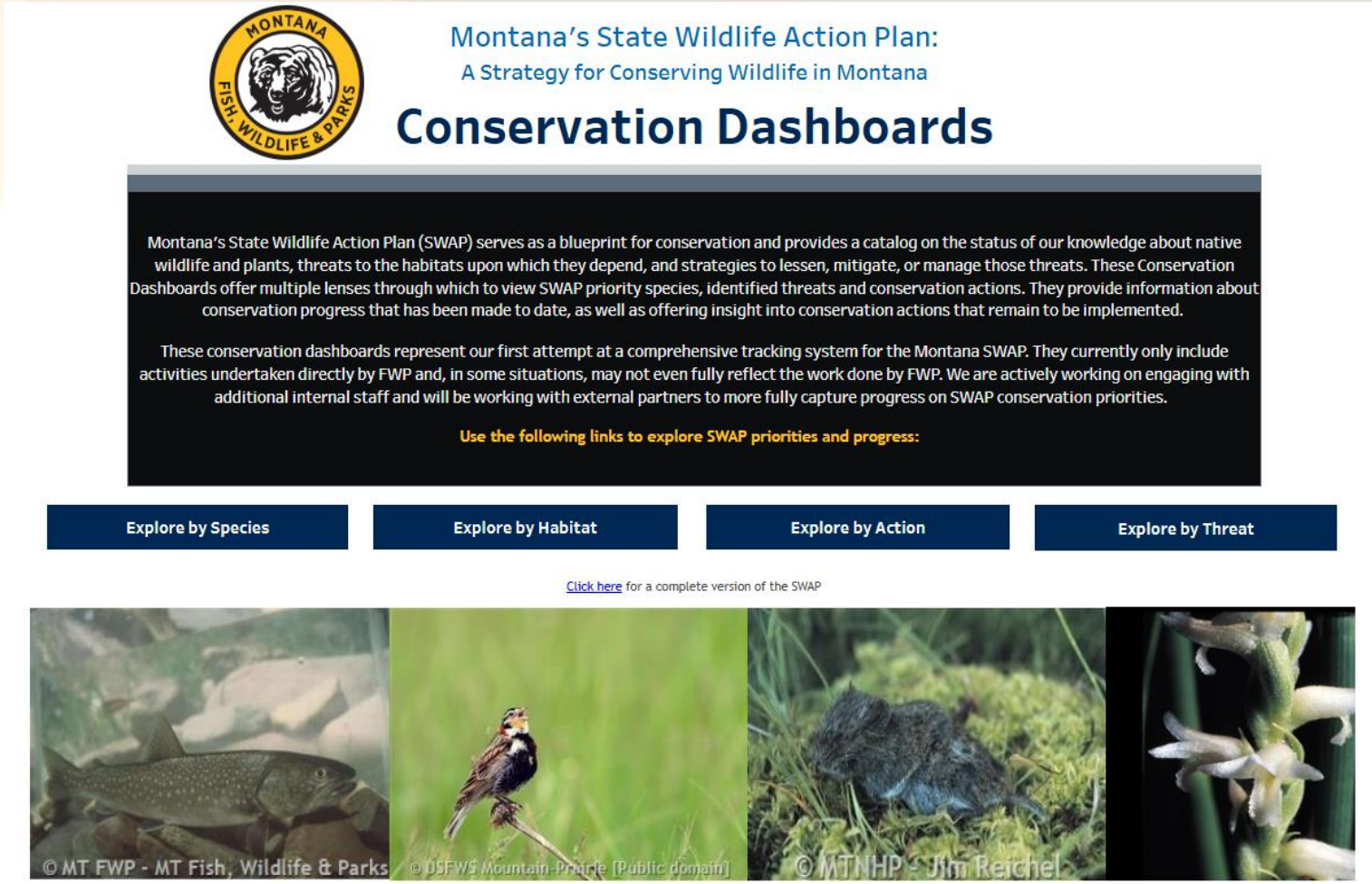
Relevant HGCN Threats and Actions

*48% of species-specific actions relate to habitat

Threats summarize by taxa

SWAP Conservation Dashboard

- Recognizes the complexity of displaying threats and actions
- Collaborative effort with MTNHP
- In development
- User can visualize SGCN & HGCN conservation in 4 ways



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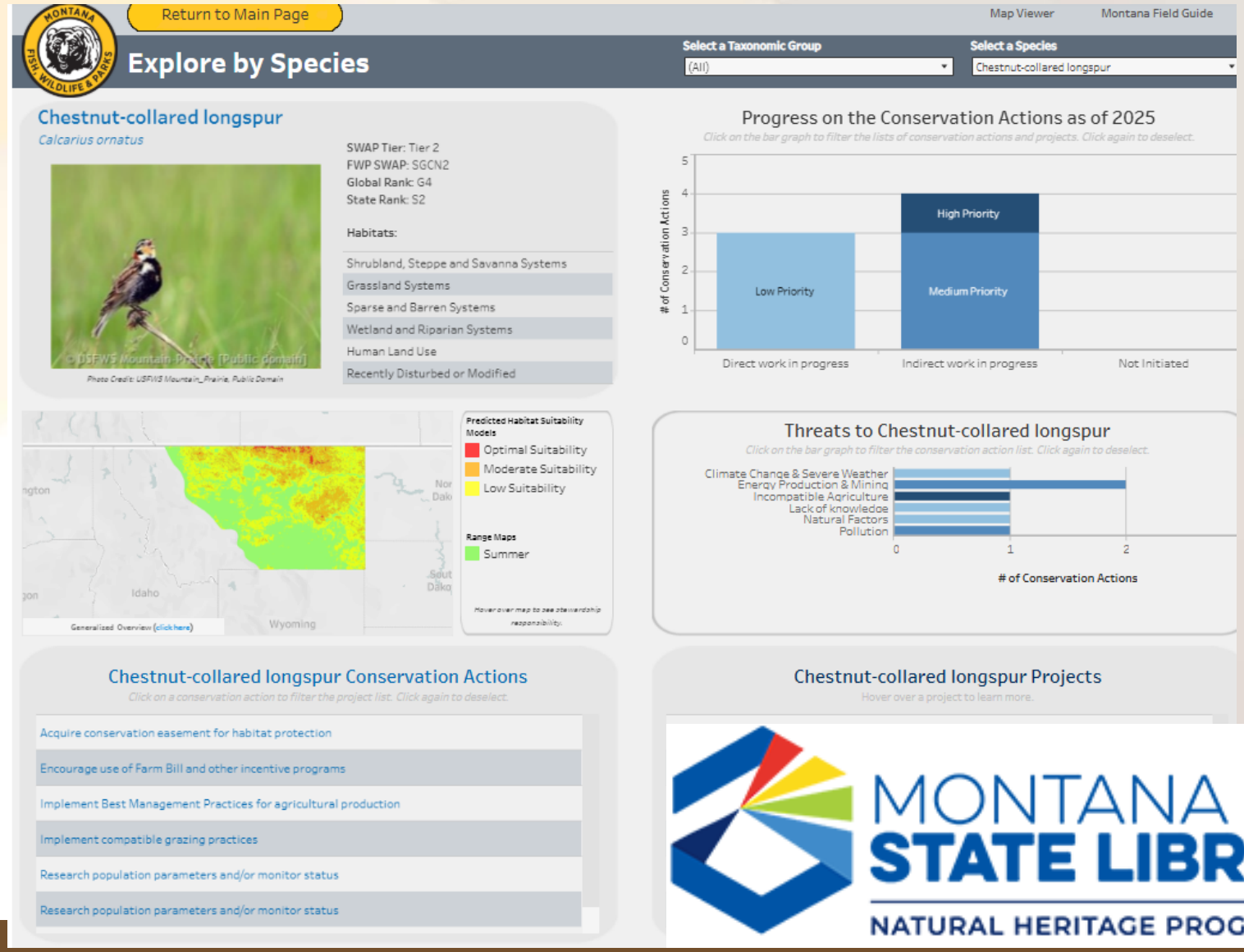
NATURAL HERITAGE PROGRAM

SWAP Conservation Dashboard



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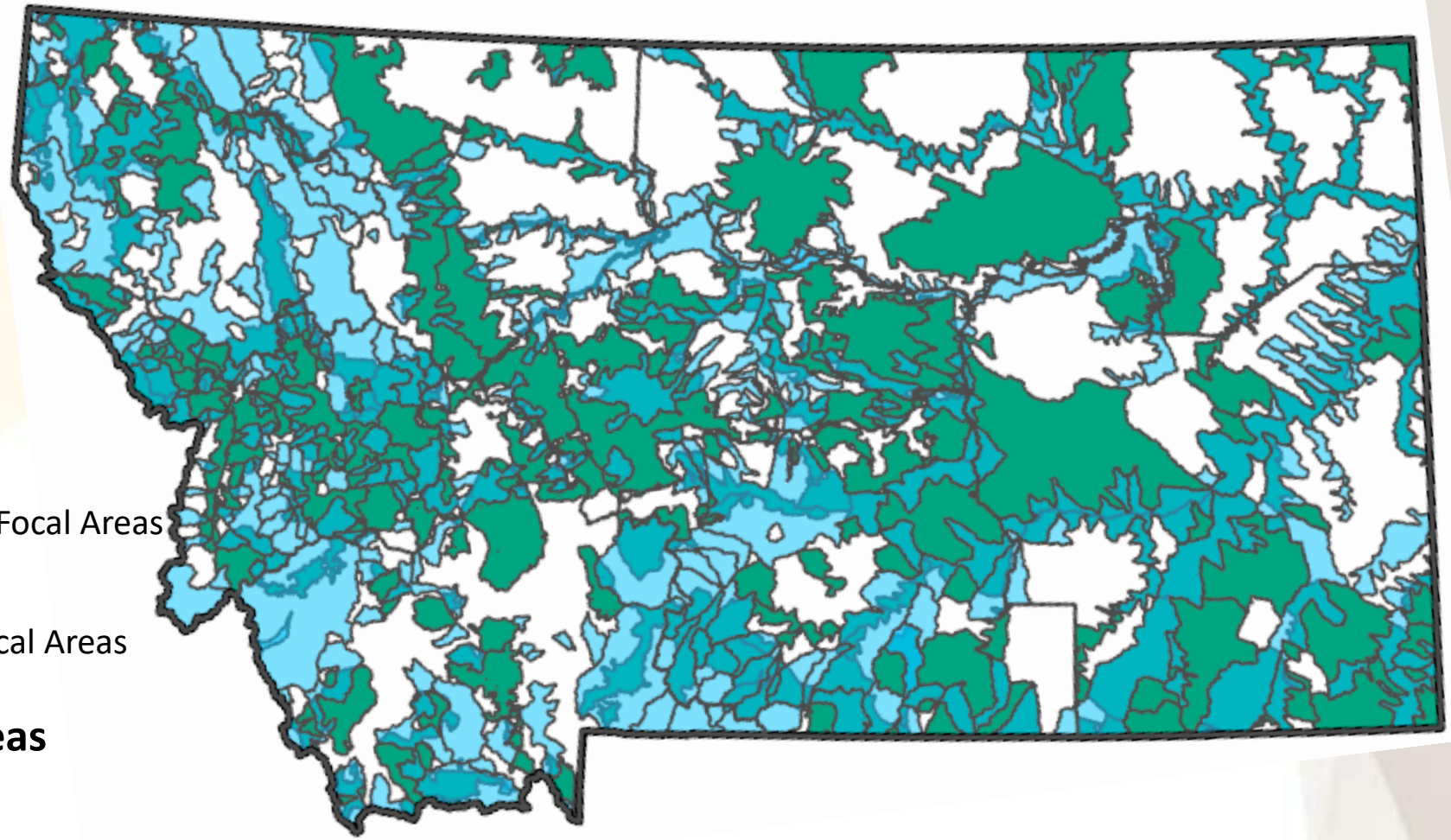
Focal Areas



2015 SWAP

116 Terrestrial Focal Areas

257 Aquatic Focal Areas

~ 300 Focal Areas

Placeholder Focal Areas Chapter

2025 SWAP

Developing New Approach – action-based maps that identify:
WHAT action to take (e.g., riparian restoration)
WHERE distributions of SGCN & HGCN overlap the most to benefit
WHO (SGCN & HGCN) and address the highest severity threats

- We envision a suite of focal area maps focused on conservation actions
- Integrate spatial distribution maps for HGCN and SGCN with spatial threats layers
- New focal areas will present a continuous gradient of the level of impact of actions so partners can ID the most impactful places to work within their geographic scope
- Available by October 2026, in the meantime use 2015 SWAP focal areas

Research and Information Needs

SWAP Teams identified 1200 research & monitoring needs

Currently processing to differentiate info needs for:

- Completing a status rank for a species
- Informing conservation actions
- Evaluating habitat treatments
- Illuminating threat mechanisms to facilitate mitigation

In progress – available October 2026

B. Martinka

Wildlife Disease Chapter

Supported by funding from USGS North Central CASC

Authors: Kelsey Martin, Wynne Moss, Emily Tomaszewski – USGS Northern Rocky Mtn Science Center

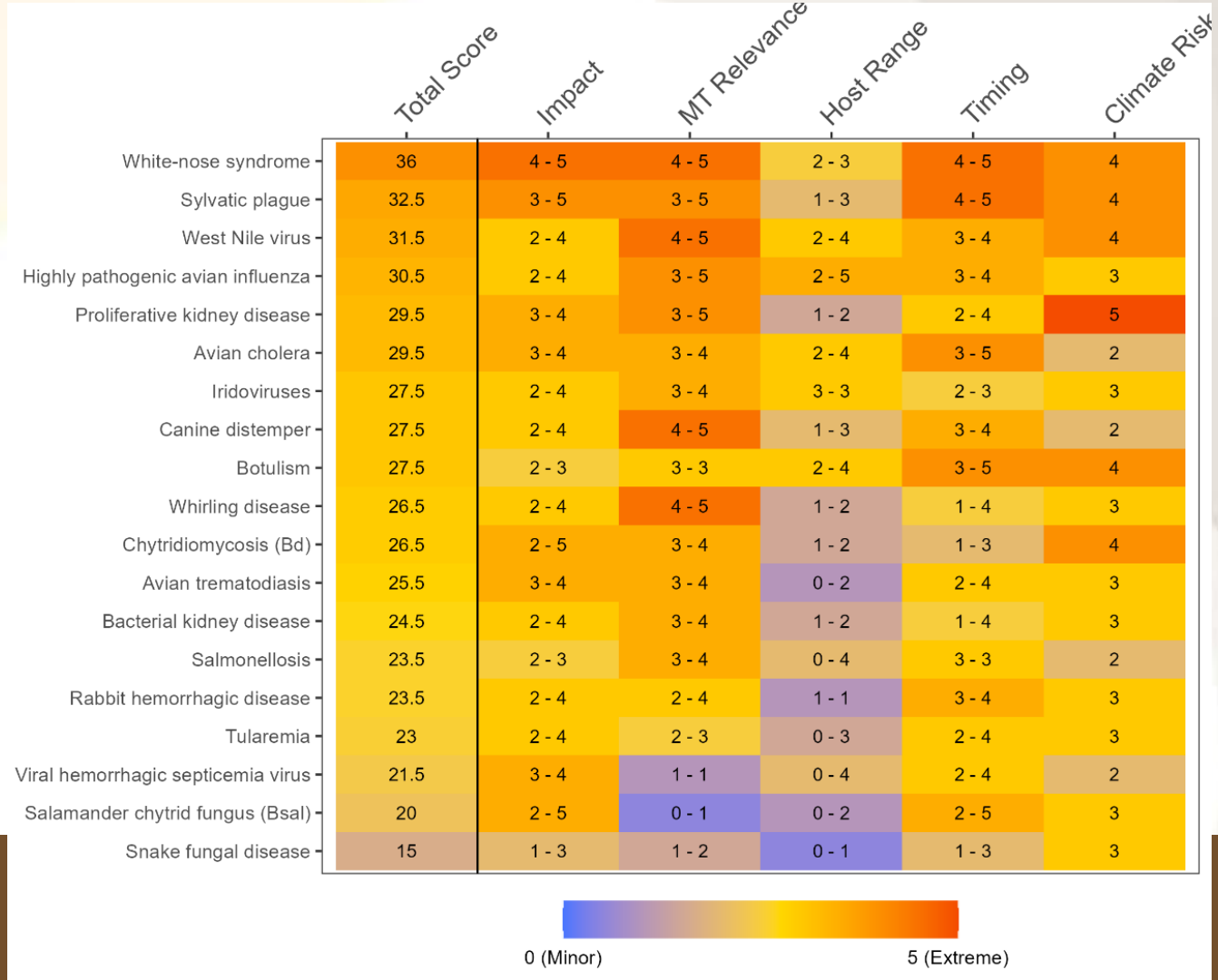
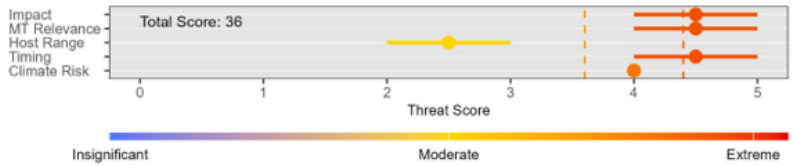


Figure 1. Ranking of wildlife disease threats for Montana's SGCN, ordered from highest (top) to lowest threat (bottom). Number ranges are given where there was uncertainty. Diseases could receive a final score between 9 and 45.

Wildlife Disease Chapter

White-nose Syndrome



SGCN with Known Impacts[1,2]
Little Brown Myotis
Northern Myotis
Yuma Myotis
Fringed Myotis
Long-eared Myotis
Long-legged Myotis
SGCN Susceptible to Infection[12]
Eastern Red Bat
Pallid Bat
Silver-haired Bat
Townsend's Big-eared Bat
Other Susceptible Montana Species[1,2]
Big Brown Bat*
California Myotis
Western Small-footed Myotis

Drivers

- Hibernation conditions (temperature, humidity)[2]
- Roosting and social behavior[2]
- Fungal load and prevalence[3]
- Colony size[2-4]
- Species composition within hibernacula[2]
- Anthropogenic activities (e.g., cave visitation)[2-4]

*Susceptible to WNS with known impacts

Background

White-nose Syndrome (WNS) is a fungal skin disease of hibernating bats that has had devastating impacts since its North American emergence in New York in 2006[4]. It is caused by the fungus *Psuedogymnoascus destructans* (Pd), which infects bats during fall and winter months. Bats are exposed through direct contact with contaminated surfaces or other infected bats[2]. Infection leads to increases in arousal frequency during hibernation and physiological stress, which result in dehydration, starvation, and frequently, death. If infected bats survive to spring emergence, they may later die of severe inflammation associated with disease impacts, further contributing to population declines[4]. Peak transmission occurs in late autumn or early winter as bats return to infected hibernacula and come into contact with one another[3], as disease progresses, mortality rates and overall prevalence are usually highest by the end of winter. Roosting behavior, hibernaculum conditions (e.g., temperature, humidity), and species-specific tolerance are key factors that influence which bat populations are most at-risk from

MONTANA STATE WILDLIFE ACTION PLAN - 2025

hibernation (improving survival rates), while increased temperature variability during winter may lead to increased arousals and energy expenditure or alter hibernacula microclimates that either favor or reduce Pd growth[11,12]. Finally, effects of future climatic shifts, especially increased drought conditions in the west, are predicted to pose significant challenges to overall bat population health, impacting reproduction, range restrictions, and survival[13].

Conservation Actions

Prevention

- Restrict access and/or advise public to avoid hibernacula during hibernation (October – May) to minimize disturbance and prevent spread of Pd[14,15].
- Promote adherence to the National White-nose Syndrome Decontamination Protocol for all relevant audiences (e.g., researchers, cavers, etc.)[6].

Disease Management

- Explore methods to reduce prevalence of Pd in infected hibernacula (e.g., fungicides, sterilization techniques)[14,15].
- Participate in WNS vaccination research efforts and consider vaccination in vulnerable Montana bat populations[16].

Species & Habitat Management

- Implement actions that promote bat health and improve adaptive capacity for disease, such as providing heated bat boxes, protecting or enhancing key habitats, preventing disturbance during hibernation, providing supplemental feed to improve bat body condition[5], or applying topical probiotics in roosting areas[14,15].
- Support MT FWP's work in leading the development of Montana's Bat Conservation and Management Plan[1].
- Support overall bat population health by addressing other sources of population decline (e.g., improper building exclusions, habitat loss, wind energy, impacts of climate change, etc.) via education, Best Management Practices, Standard Operating Procedures, and other recommendations[14,15].

Surveillance & Monitoring

- Continue implementing and advancing the multimodal NABat monitoring framework (e.g., acoustics, colony counts, capture data) as it applies to Montana FWP's *WNS and PD Surveillance and Monitoring*[1].
- Utilize methods from the National Wildlife Health Center's *Model Guided Surveillance*[1].
- Continue developing the "Bat Acoustic Call Library" (acoustic recordings of echolocation sequences from known species) to improve detection of species-specific population changes[6].

Research/knowledge gaps

- Susceptibility and survival rates for Montana bat species and species-specific WNS epidemiology[14], including sublethal effects and impacts on reproductive success
- Research on the adaptive capacities of bat populations that allow for recovery and persistence in the presence of Pd

S. Hilty

Wildlife Viewing and Education Chapter

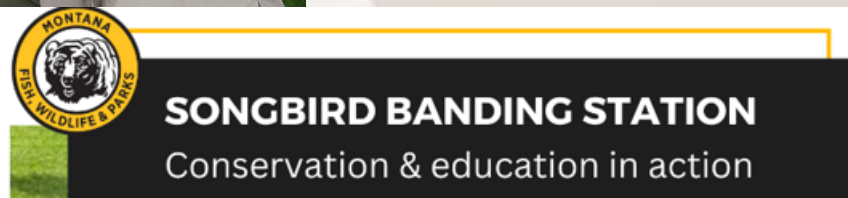
Enhancing conservation of SGCN and their habitats through communication, education, citizen science, and wildlife viewing


Bo Crees

4 broad strategies

- Communication
- Education
- Citizen Science
- Wildlife Viewing

SWAP identified dozens Conservation Actions
Partner engagement
Hiring a Watchable Wildlife Program Coordinator



Questions?

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