

# **MONTANA'S**

# **STATE WILDLIFE ACTION PLAN**

**MONTANA FISH, WILDLIFE & PARKS**  
**2015**

The mission of Montana Fish, Wildlife & Parks (FWP) is to provide for the stewardship of the fish, wildlife, parks, and recreational resources of Montana, while contributing to the quality of life for present and future generations. To carry out its mission, FWP strives to provide and support fiscally responsible programs that conserve, enhance, and protect Montana's 1) aquatic ecotypes, habitats, and species; 2) terrestrial ecotypes, habitats, and species; and 3) important cultural and recreational resources.

This document should be cited as Montana's State Wildlife Action Plan. 2015. Montana Fish, Wildlife & Parks, 1420 East Sixth Avenue, Helena, MT 59620. 441 pp.

## EXECUTIVE SUMMARY

Montana's first State Wildlife Action Plan (SWAP), the Comprehensive Fish and Wildlife Conservation Strategy (CFWCS), was approved by the U.S. Fish and Wildlife Service in 2006. Since then, many conservation partners have used the plan to support their conservation work and to seek additional funding to continue their work. For Montana Fish, Wildlife & Parks (FWP), State Wildlife Grant (SWG) dollars have helped implement the strategy by supporting conservation efforts for many different species and habitats. This revision details implemented actions since 2006 ([Appendix C](#)).

This SWAP identifies community types, Focal Areas, and species in Montana with significant issues that warrant conservation attention. The plan is not meant to be an FWP plan, but a plan to guide conservation throughout Montana.

One hundred and twenty-eight Species of Greatest Conservation Need (SGCN) are identified in this revision. Forty-seven of these are identified as being in most critical conservation need. In addition to identifying these species, their associated habitats were prioritized as Community Types of Greatest Conservation Need (CTGCN). Twelve terrestrial CTGCN were identified and streams, rivers, and several lakes and reservoirs were identified as aquatic CTGCN. More SGCN are found within these communities than any other types within the state. Therefore conservation efforts implemented in one CTGCN may benefit several species. To further pinpoint areas of greatest conservation need, Focal Areas were identified for both aquatic and terrestrial habitats. These areas were prioritized and 13 aquatic and 14 terrestrial Focal Areas were identified and described in detail in this SWAP.

Current impacts, future threats, and conservation actions were identified for CTGCN and were intended to be implemented across an entire community to get "the biggest bang for the buck." However, it is not easy to represent this information without being redundant. Instead, the list of actions in this SWAP is categorized by threat/impact and not by the community type for which they were identified. Therefore, not all actions in a threat/impact category will be relevant to all community types. It is recommended that before beginning a project, the list of impacts and threats be reviewed and appropriate actions (e.g. based on community type or habitat type) be incorporated into the project goals.

Actions implemented at the community type scale or for specific Focal Areas will benefit many species associated with these areas. However, species specific actions were also developed for the 47 most critical SGCN. If a project is species specific, the information found in the SGCN section will be of most use.

For successful implementation of this plan, it is critical that conservation actions be tracked so that success can be monitored, and adjustments made in priorities and actions if necessary. FWP will be employing methodologies using the Association of Fish and Wildlife Agencies' (AFWA) *Measuring the Effectiveness of State Wildlife Grants – Final Report* (AFWA 2011) for consistent reporting and measuring effectiveness.

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	<b>i</b>
<b>TABLE OF CONTENTS</b> .....	<b>ii</b>
<b>LIST OF FIGURES</b> .....	<b>vii</b>
<b>LIST OF APPENDICES</b> .....	<b>xi</b>
<b>INTRODUCTION</b> .....	<b>1</b>
Planning Structure and Approach .....	2
Committees and Teams .....	2
Guidance Document.....	3
Public Involvement .....	4
Implementation .....	4
How to Use This Plan .....	5
<b>METHODS</b> .....	<b>6</b>
Community Types of Greatest Conservation Need .....	6
Community Type Tier Definitions.....	6
Aquatic Community Types .....	6
Terrestrial Community Types .....	7
Focal Areas .....	10
Focal Area Tier Definitions .....	11
Species of Greatest Conservation Need.....	11
Species of Greatest Inventory Need.....	12
Conservation Actions .....	13
<b>RESULTS</b> .....	<b>14</b>
Aquatic Community Types of Greatest Conservation Need.....	14
Intermountain Valley Rivers and Streams .....	15
Mixed Systems .....	17
Mountain Streams .....	19
Prairie Rivers and Prairie Streams .....	21
Lakes and Reservoirs .....	23
Aquatic Community Type Impacts, Threats, and Actions .....	25
Broad Actions for Aquatic Community Type Impacts and Threats .....	25
Collaboration and Outreach .....	25
Habitat Protection .....	26
Planning and Review .....	26
Training and Technical Assistance .....	26
Specific Impacts and Threats to Aquatic Community Types .....	26
Water Management.....	26
Habitat Fragmentation .....	27
Riparian/Water Body Management .....	27
Wind Energy .....	28
Non-native Species .....	29

Climate Change.....	29
Harvest of SGCN .....	29
Terrestrial Community Types of Greatest Conservation Need .....	30
Floodplain and Riparian.....	32
Open Water .....	34
Wetlands .....	36
Alpine Grassland and Shrubland & Alpine Sparse or Barren.....	40
Conifer-Dominated Forest and Woodland (mesic-wet).....	42
Conifer-dominated Forest and Woodland (xeric-mesic) .....	44
Deciduous Dominated Forest and Woodland .....	46
Deciduous Shrubland .....	48
Lowland/Prairie Grassland.....	50
Montane Grassland .....	53
Sagebrush Steppe & Sagebrush-Dominated Shrubland.....	55
Scrub and Dwarf Shrubland.....	57
Terrestrial Community Type Impacts, Threats, and Actions .....	59
Broad Actions for Terrestrial Community Type Impacts and Threats .....	59
Collaboration and Outreach .....	59
Habitat Protection .....	60
Planning and Review .....	60
Specific Impacts and Threats to Terrestrial Community Types .....	60
Habitat Fragmentation .....	60
Pollution/contamination of Resources .....	61
Land Management .....	61
Wind Energy .....	63
Recreation .....	63
Climate Change.....	63
Land Use Change.....	63
Invasive Species.....	64
Regional Focal Areas .....	65
Aquatic Regional Focal Areas .....	65
Swan River.....	67
Stillwater River (Flathead River).....	69
Fish Creek .....	70
North Fork Blackfoot (Scapegoat Wilderness).....	72
Big Hole - Grayling .....	73
Shields YCT.....	75
Region 4 WCT Distribution/restoration.....	77
Lower Musselshell .....	79
Slough Creek.....	81
Milk River.....	82
Lower Missouri River.....	84
Yellowstone River .....	86
Tongue River .....	88

Terrestrial Regional Focal Areas.....	90
Whitefish Stillwater .....	92
Salish.....	95
Seeley-Gold Creek .....	97
Bitterroot-Clark Fork Riparian Corridor.....	100
Madison Valley.....	102
North Big Hole.....	104
Sage Grouse Core Area.....	106
Kevin Rim.....	108
Cottonwood Triangle .....	110
Beartooth Face .....	112
Sagebrush/Grassland.....	114
Milk River.....	116
Sagebrush Obligates.....	118
Ingomar .....	120
Species of Greatest Conservation Need.....	122
Invertebrates.....	122
Mussels .....	123
Western Pearlshell .....	123
Vertebrates .....	126
Amphibians.....	127
Idaho Giant Salamander.....	127
Coeur d’Alene Salamander.....	130
Northern Leopard Frog.....	133
Great Plains Toad.....	136
Western Toad.....	138
Birds.....	141
Whooping Crane.....	141
Black Rosy-Finch .....	143
Gray-crowned Rosy-Finch.....	145
Blue-gray Gnatcatcher .....	147
Caspian Tern.....	149
Least Tern .....	151
Chestnut-collared Longspur.....	155
Mountain Plover .....	157
Piping Plover.....	160
Harlequin Duck.....	164
Black Swift .....	168
Greater Sage-Grouse.....	170
Sharp-tailed Grouse .....	175
Lewis’s Woodpecker .....	179
Fish.....	183
Shortnose Gar .....	183
Pearl Dace.....	185

Sicklefin Chub .....	188
Sturgeon Chub .....	190
Paddlefish.....	192
Sauger .....	195
Pallid Sturgeon.....	199
White Sturgeon .....	203
Blue Sucker.....	205
Arctic Grayling .....	208
Bull Trout.....	211
Columbia River Redband Trout.....	216
Lake Trout.....	220
Westslope Cutthroat Trout.....	222
Yellowstone Cutthroat Trout .....	227
Trout-perch .....	232
Mammals.....	234
Grizzly Bear .....	234
Bison .....	237
Northern Bog Lemming.....	240
Arctic Shrew .....	243
Dwarf Shrew .....	245
Northern Short-tailed Shrew .....	247
White-tailed Prairie Dog.....	249
Black-footed Ferret .....	252
Reptiles .....	256
Milksnake.....	256
Smooth Greensnake .....	258
Western Hog-nosed Snake.....	260
Species of Greatest Inventory Need.....	262
Amphibians .....	262
Coeur d'Alene Salamander .....	262
Birds .....	263
Black-billed Cuckoo .....	263
Yellow-billed Cuckoo.....	264
Broad-tailed Hummingbird.....	265
Common Poorwill.....	266
Boreal Owl.....	267
Eastern Screech-Owl.....	268
Great Gray Owl.....	269
Northern Hawk Owl.....	270
Short-eared Owl .....	271
Western Screech-Owl .....	272
Sagebrush Sparrow .....	273
Barrow's Goldeneye .....	274
Hooded Merganser.....	275
Chimney Swift .....	276

White-tailed Ptarmigan .....	277
Black Rosy-Finch.....	278
Gray-crowned Rosy-Finch.....	278
Least Tern .....	278
Harlequin Duck.....	278
Black Swift.....	278
Fish.....	279
Deepwater Sculpin .....	279
Pygmy Whitefish .....	280
Trout-perch .....	280
Mammals.....	281
Spotted Bat.....	281
Yuma Myotis .....	282
Meadow Jumping Mouse.....	283
Idaho Pocket Gopher.....	284
Great Basin Pocket Mouse.....	285
Hispid Pocket Mouse .....	286
Porcupine .....	287
Black-tailed Jack Rabbit .....	288
Western Spotted Skunk.....	289
Hoary Marmot.....	290
Uinta Chipmunk.....	291
Uinta Ground Squirrel.....	292
Northern Bog Lemming.....	292
Reptiles .....	293
Northern Alligator Lizard .....	293
Greater Short-horned Lizard.....	294
Pygmy Short-horned Lizard.....	294
Western Skink.....	295
Snapping Turtle.....	296
Smooth Greensnake .....	296
Western Hog-nosed Snake.....	296
<b>MONITORING AND ADAPTIVE MANAGEMENT .....</b>	<b>297</b>
Habitat Monitoring .....	298
Species Monitoring.....	299
Monitoring Fish Populations and Aquatic Ecological Health .....	300
<b>LITERATURE CITED.....</b>	<b>302</b>
<b>APPENDICES.....</b>	<b>321</b>

## LIST OF FIGURES

Figure 1. Community Types in Montana .....	8
Figure 2. Omernik’s Level III Ecoregions .....	9
Figure 3. Distribution of Intermountain Valley Rivers and Streams .....	15
Figure 4. Distribution of Mixed Systems.....	17
Figure 5. Distribution of Mountain Streams .....	19
Figure 6. Distribution of Prairie Rivers and Prairie Streams .....	21
Figure 7. Distribution of Tier I Lakes and Reservoirs .....	23
Figure 8. Overall terrestrial community type tiers.....	31
Figure 9. Distribution of Floodplain and Riparian Community Type .....	32
Figure 10. Distribution of Open Water Community Type.....	34
Figure 11. Distribution of Wetland Community Types .....	36
Figure 12. Distribution of Tier I Alpine Grassland and Shrubland & Alpine Sparse and Barren.....	40
Figure 13. Distribution of Tier I Conifer-dominated Forest and Woodland (mesic-wet) .....	42
Figure 14. Distribution of Tier I Conifer-dominated Forest and Woodland (xeric-mesic) .....	44
Figure 15. Distribution of Tier I Deciduous Dominated Forest and Woodland .....	46
Figure 16. Distribution of Tier I Deciduous Shrubland.....	48
Figure 17. Distribution of Tier I Lowland/Prairie Grassland .....	50
Figure 18. Distribution of Tier I Montane Grassland .....	53
Figure 19. Distribution of Tier I Sagebrush Steppe & Sagebrush-dominated Shrubland .....	55
Figure 20. Distribution of Tier I Scrub and Dwarf Shrubland.....	57
Figure 21. Top Tier I aquatic and terrestrial Focal Areas .....	65
Figure 22. Top 13 Aquatic Focal Areas.....	66
Figure 23. Swan River Focal Area in FWP Region 1 (Kalispell).....	67
Figure 24. Stillwater River Focal Area in FWP Region 1 (Kalispell) .....	69
Figure 25. Fish Creek Focal Area in FWP Region 2 (Missoula).....	70
Figure 26. North Fork Blackfoot (Scapegoat Wilderness) Focal Area in FWP Region 2 (Missoula) .....	72
Figure 27. Big Hole – Grayling Focal Area in FWP Region 3 (Bozeman) .....	73
Figure 28. Shields YCT Focal Area in FWP Region 3 (Bozeman) .....	75
Figure 29. Region 4 WCT Distribution/restoration Focal Area in FWP Region 4 (Great Falls) .....	77
Figure 30. Lower Musselshell Focal Area in FWP Regions 4 and 5 (Great Falls and Billings).....	79
Figure 31. Slough Creek Focal Area in FWP Region 5 (Billings) .....	81
Figure 32. Milk River Focal Area in FWP Region 6 (Glasgow) .....	82

Figure 33. Lower Missouri River Focal Area in FWP Regions 4 and 6 (Great Falls and Glasgow).....	84
Figure 34. Yellowstone River Focal Area in FWP Region 7 (Miles City).....	86
Figure 35. Tongue River Focal Area in FWP Region 7 (Miles City).....	88
Figure 36. Top 14 Terrestrial Focal Areas.....	91
Figure 37. Whitefish Stillwater Focal Area in FWP Region 1 (Kalispell).....	92
Figure 38. Salish Focal Area in FWP Region 1 (Kalispell).....	95
Figure 39. Seeley-Gold Creek Focal Area in FWP Region 2 (Missoula).....	97
Figure 40. Bitterroot-Clark Fork Riparian Corridor Focal Area in FWP Region 2 (Missoula).....	100
Figure 41. Madison Valley Focal Area in FWP Region 3 (Bozeman).....	102
Figure 42. North Big Hole Focal Area in FWP Region 3 (Bozeman).....	104
Figure 43. Sage Grouse Core Area Focal Area in FWP Region 4 (Great Falls).....	106
Figure 44. Kevin Rim Focal Area in FWP Region 4 (Great Falls).....	108
Figure 45. Cottonwood Triangle Focal Area in FWP Region 5 (Billings).....	110
Figure 46. Beartooth Face Focal Area in FWP Region 5 (Billings).....	112
Figure 47. Sagebrush/Grassland Focal Area in FWP Region 6 (Glasgow).....	114
Figure 48. Milk River Focal Area in FWP Region 6 (Glasgow).....	116
Figure 49. Sagebrush Obligates Focal Area in FWP Region 7 (Miles City).....	118
Figure 50. Ingomar Focal Area in FWP Region 7 (Miles City).....	120
Figure 51. Montana range and observations of the western pearlshell.....	123
Figure 52. Montana range and observations of the Idaho giant salamander.....	127
Figure 53. Montana range and observations of the Coeur d'Alene salamander.....	130
Figure 54. Montana range and observations of the northern leopard frog.....	133
Figure 55. Montana range and observations of the Great Plains toad.....	136
Figure 56. Montana range and observations of the western toad.....	138
Figure 57. Montana observations of the whooping crane.....	141
Figure 58. Montana range and observations of the black rosy-finch.....	143
Figure 59. Montana range and observations of the gray-crowned rosy-finch.....	145
Figure 60. Montana range and observations of the blue-gray gnatcatcher.....	147
Figure 61. Montana range and observations of the Caspian tern.....	149
Figure 62. Montana range and observations of the least tern.....	151
Figure 63. Montana range and observations of the chestnut-collared longspur.....	155
Figure 64. Montana range and observations of the mountain plover.....	157
Figure 65. Montana range and observations of the piping plover.....	160
Figure 66. Montana range and observations of the harlequin duck.....	164
Figure 67. Montana range and observations of the black swift.....	168
Figure 68. Montana range and observations of the greater sage-grouse.....	170
Figure 69. Montana range and observations of the sharp-tailed grouse.....	175

Figure 70. Montana range and observations of the Lewis’s woodpecker.....	179
Figure 71. Distribution of shortnose gar.....	183
Figure 72. Distribution of the pearl dace.....	185
Figure 73. Distribution of sicklefin chub.....	188
Figure 74. Distribution of sturgeon chub.....	190
Figure 75. Distribution of paddlefish.....	192
Figure 76. Distribution of sauger.....	195
Figure 77. Distribution of the pallid sturgeon.....	199
Figure 78. Distribution of white sturgeon.....	203
Figure 79. Distribution of blue sucker.....	205
Figure 80. Distribution of Arctic grayling.....	208
Figure 81. Distribution of bull trout.....	211
Figure 82. Distribution of Columbia River redband trout.....	216
Figure 83. Distribution of lake trout.....	220
Figure 84. Distribution of westslope cutthroat trout.....	222
Figure 85. Distribution of Yellowstone cutthroat trout.....	227
Figure 86. Distribution of the trout-perch.....	232
Figure 87. Montana range and observations of the grizzly bear.....	234
Figure 88. Montana range and observations of bison classified as “game animal” and/or “species in need of disease control”.....	237
Figure 89. Montana range and observations of the northern bog lemming.....	240
Figure 90. Montana range and observations of the arctic shrew.....	243
Figure 91. Montana range and observations of the dwarf shrew.....	245
Figure 92. Montana range and observations of the northern short-tailed shrew.....	247
Figure 93. Montana range and observations of the white-tailed prairie dog.....	249
Figure 94. Montana observations of the black-footed ferret.....	252
Figure 95. Montana range and observations of the milksnake.....	256
Figure 96. Montana range and observations of the smooth greensnake.....	258
Figure 97. Montana range and observations of the western hog-nosed snake.....	260
Figure 98. Montana range and observations of the black-billed cuckoo.....	263
Figure 99. Montana range and observations of the yellow-billed cuckoo.....	264
Figure 100. Montana range and observations of the broad-tailed hummingbird.....	265
Figure 101. Montana range and observations of the common poorwill.....	266
Figure 102. Montana range and observations of the boreal owl.....	267
Figure 103. Montana range and observations of the eastern screech-owl.....	268
Figure 104. Montana range and observations of the great gray owl.....	269
Figure 105. Montana range and observations of the northern hawk owl.....	270
Figure 106. Montana range and observations of the short-eared owl.....	271

Figure 107. Montana range and observations of the western screech-owl .....	272
Figure 108. Montana range and observations of the sagebrush sparrow .....	273
Figure 109. Montana range and observations of Barrow’s goldeneye .....	274
Figure 110. Montana range and observations of the hooded merganser .....	275
Figure 111. Montana range and observations of the chimney swift .....	276
Figure 112. Montana range and observations of the white-tailed ptarmigan .....	277
Figure 113. Montana range and observations of the deepwater sculpin.....	279
Figure 114. Montana range and observations of the pygmy whitefish.....	280
Figure 115. Montana range and observations of the spotted bat .....	281
Figure 116. Montana range and observations of the Yuma myotis .....	282
Figure 117. Montana range and observations of the meadow jumping mouse .....	283
Figure 118. Montana range and observations of the Idaho pocket gopher.....	284
Figure 119. Montana range and observations of the Great Basin pocket mouse.....	285
Figure 120. Montana range and observations of the hispid pocket mouse.....	286
Figure 121. Montana range and observations of the porcupine.....	287
Figure 122. Montana range and observations of the black-tailed jack rabbit.....	288
Figure 123. Montana range and observations of the western spotted skunk .....	289
Figure 124. Montana range and observations of the hoary marmot .....	290
Figure 125. Montana range and observations of the Uinta chipmunk.....	291
Figure 126. Montana range and observations of the Uinta ground squirrel .....	292
Figure 127. Montana range and observations of the northern alligator lizard.....	293
Figure 128. Montana range and observations of the greater short-horned lizard.....	294
Figure 129. Montana range and observations of the western skink.....	295
Figure 130. Montana range and observations of the snapping turtle.....	296
Figure 131. Tier I Aquatic Focal Areas .....	348
Figure 132. Tier II Aquatic Focal Areas.....	356
Figure 133. Tier I Terrestrial Focal Areas .....	360
Figure 134. Tier II Terrestrial Focal Areas.....	429

## LIST OF APPENDICES

Appendix A: Frequently used acronyms found in the SWAP .....	321
Appendix B: State Wildlife Action Plan Road Map .....	323
Appendix C: Progress report since implementation of the Comprehensive Fish & Wildlife Conservation Strategy.....	326
Appendix D: Questions asked Montana Fish, Wildlife & Parks employees via Survey Monkey prior to starting the State Wildlife Action Plan revision .....	336
Appendix E: List of external agencies and organizations met with to discuss the previous Comprehensive Fish and Wildlife Conservation Strategy prior to starting revision.....	337
Appendix F: State Wildlife Action Plan revision guidance document, 27 March 2012.....	338
Appendix G: Lakes and reservoirs whose Tier ranks were increased because of importance to one or more SGCN.....	340
Appendix H. Tiered Community Types.....	341
Appendix I: Factors considered in the identification of regional aquatic and terrestrial Focal Areas for Montana’s State Wildlife Action Plan revision .....	345
Appendix J: Tier I Aquatic Focal Areas .....	347
Appendix K: Tier II Aquatic Focal Areas.....	355
Appendix L: Tier I Terrestrial Focal Areas .....	359
Appendix M: Tier II Terrestrial Focal Areas .....	428
Appendix N: List of all Species of Greatest Conservation Need.....	431
Appendix O: List of Invertebrate Species of Concern (Montana Natural Heritage Program 2014) .....	437
Appendix P: List of Plant Species of Concern (Global rank of G1 or G2 only; Montana Natural Heritage Program 2014).....	440

## **MONTANA FISH, WILDLIFE & PARKS MISSION STATEMENT AND VISION FOR THE 21ST CENTURY**

*Montana Fish, Wildlife & Parks, through its employees and citizen Commission, provides for the stewardship of the fish, wildlife, parks and recreational resources of Montana while contributing to the quality of life for present and future generations.*

*Montana Fish, Wildlife & Parks will provide the leadership necessary to create a commitment in the hearts and minds of people to ensure that, in our second century, and in partnership with many others, we will sustain our diverse fish, wildlife and parks resources and the quality recreational opportunities that are essential to a high quality of life for Montanans and our guests (Montana Fish, Wildlife & Parks 2008).*

Together, these statements lay the foundation for this State Wildlife Action Plan.

### **INTRODUCTION**

In the early years of fish and wildlife management, the focus was on restoration of game animals and their habitats. This focus was, and continues to be, a result of hunters and anglers providing most of a state fish and wildlife agency's funding through purchasing hunting and fishing licenses. However, Montana Fish, Wildlife & Parks (FWP) is statutorily mandated to manage all wildlife (FWP 2011), including species not typically fished for or hunted. Without reducing the attention focused on important game species, FWP needs to find a way to manage for other species with the most critical needs.

To help address the conservation needs of these other wildlife species, Congress created the State Wildlife Grant (SWG) funding program in 2000. SWG funds are intended "... for the development and implementation of programs for the benefit of wildlife and their habitat, including species that are not hunted or fished." Congress stipulated that each state and territory that wished to participate in the SWG funding program must develop a State Wildlife Action Plan (SWAP) by October 1, 2005. All 56 states and territories submitted SWAPs by the deadline and made commitments to review and perhaps revise their SWAP at least every 10 years. Montana's first SWAP, the Comprehensive Fish and Wildlife Conservation Strategy (CFWCS; FWP 2006), was approved by the U.S. Fish and Wildlife Service (USFWS) in January 2006.

The SWAP revision was designed to identify species and their habitats that are in greatest need of conservation *regardless of* availability of SWG support in the future. The implication of this is that community types, Focal Areas, and priority species *still require attention*. Partnerships and other funding sources should be sought by FWP, and other agencies and organizations should be encouraged to focus their conservation efforts on these species, community types and Focal Areas. Even with SWG funding, the work identified in this plan far exceeds the funding amounts that would be received.

Every community type in Montana and all vertebrates, crayfish, and mussels were considered in this revision. Conservation actions were developed for the community types and species

considered to be in greatest conservation need, resulting in a document that provides priority conservation direction in Montana.

Though FWP was the lead agency responsible for reviewing and revising our first SWAP, collaboration with partners was necessary to ensure that the future of Montana's wildlife was secure. This SWAP identifies priority community types, Focal Areas, and species to aid not only in informing FWP's priorities and decisions, but to assist other agencies and organizations in making decisions on where to focus their conservation efforts. The priorities outlined in this SWAP should guide conservation efforts to maintain Montana's tremendous biodiversity that makes this the last best place.

## **PLANNING STRUCTURE AND APPROACH**

The first step in the revision process was to send out a survey to FWP staff who either may have been involved in developing the CFWCS in some capacity, or might want to be involved in the revision. The survey was not exclusively a CFWCS/SWAP survey; it included questions for two other projects. The portion of the survey referencing the SWAP can be found in [Appendix D](#). The survey was sent to 156 FWP employees and 126 (81%) responded.

The Coordinator followed up with face-to-face interviews with 63 survey recipients. In addition, 28 individuals from 13 agencies/organizations ([Appendix E](#)) were met with to discuss their past involvement in the CFWCS development and how their agency or organization would like to be involved in the future development of the SWAP.

The survey and meetings helped lay the foundation for the SWAP development and involvement. Comments on how to engage FWP Regional Offices and staff were particularly helpful. Also very helpful was the consistent message from external agencies and organizations that they were very interested in being kept updated, although they were unsure how frequently they could actively participate given their available time and limited funding.

## **COMMITTEES AND TEAMS**

An internal Steering Committee was convened to guide the SWAP based on input and recommendations from newly formed Technical Teams. There were several committee and team member changes because of staff changes and retirements. These lists represent those that were serving on the committee and teams as of submission of the draft SWAP.

### **Steering Committee**

Jeff Hagener	FWP Director
Ron Aasheim	Communication and Education Administrator
Ken McDonald	Wildlife Administrator
Bruce Rich	Fisheries Administrator
Pat Flowers	Region 3 Supervisor
Tom Flowers	Region 6 Supervisor

### **Aquatic Technical Team**

Leo Rosenthal	Region 1 Fisheries Biologist
Ladd Knotek	Region 2 Fisheries Biologist
Ron Spoon	Region 3 Fisheries Biologist
Grant Grisak	Region 4 Fisheries Biologist
Mike Ruggles	Region 5 Fisheries Biologist
Tyler Haddix	Region 6 Fisheries Biologist
Caleb Bollman	Region 7 Fisheries Biologist
Lee Nelson	Native Species Coordinator

### **Terrestrial Technical Team**

Chris Hammond	Region 1 Wildlife Biologist
Kristi DuBois	Region 2 Wildlife Biologist
Claire Gower	Region 3 Wildlife Biologist
Brent Lonner	Region 4 Wildlife Biologist
Ashley Beyer	Region 5 Wildlife Biologist
Mark Sullivan	Region 6 Wildlife Manger
John Ensign	Region 7 Wildlife Manager
Lauri Hanauska-Brown	Nongame, Threatened, and Endangered Species Bureau Chief
Kristina Smucker	Wildlife Biologist (served as the liaison to the Montana Bird Conservation Partnership)

### **External Technical Team Members**

Members of this group were invited to participate in all meetings where the above technical teams met, except for the initial meeting in October 2011. Because of staffing shortfalls, travel restrictions, and a variety of other factors, participation varied between members and meetings. When agencies/organizations could, they sent an alternate to participate in person or via a conference call.

Jake Chaffin	Bureau of Land Management
Gary Tabor	Center for Large Landscape Conservation
Bryce Maxell	Montana Natural Heritage Program
Pete Husby	Natural Resources Conservation Service
Brian Martin	The Nature Conservancy
Yvette Converse	U.S. Fish and Wildlife Service
Alan Dohmen	U.S. Forest Service

### **GUIDANCE DOCUMENT**

In February 2012, FWP held a Structured Decision Making meeting to help the Steering Committee develop a guidance document for the SWAP revision. Invited to this meeting were Steering Committee members, Regional Supervisors, Administrators, Bureau Chiefs, and a few biologists.

A problem statement and objectives were finalized in March 2012 to guide what to include in the SWAP revision and what the SWAP must be used for ([Appendix F](#)).

### **PUBLIC INVOLVEMENT**

Public involvement is critical to the SWAP development for Montana and will become even more important as FWP moves toward implementation. The internal technical team was queried about the best way to announce the SWAP revision to the public. They decided to inform the public of the SWAP revision via an informational letter that was sent to a mailing list that contained over 450 individuals, agencies, and organizations. Agencies and organizations were asked to forward the letter on to their entire staff, membership, or mailing lists. It is uncertain how many people the letter reached. Additional information was provided to the public via press releases, website updates, and four newsletters to the mailing list above. All of the correspondence included the Coordinator's contact information and people were encouraged to contact her if they wanted more information or wanted to know how to become involved.

A 30-day public review for the draft of this SWAP was announced with a press release, an announcement in the newsletter and on the SWAP website, and letters or emails sent to the mailing list referenced above. The public was encouraged to view and/or download the draft SWAP online. During the draft review, 21 people either from the general public or representing other agencies and organizations submitted comments concerning the draft.

### **IMPLEMENTATION**

When fully implemented, this SWAP will be dynamic and will be revised based on the constant collection of data that will inform the ranking of Community Types of Greatest Conservation Need (CTGCN), Focal Areas, Species of Greatest Conservation Need (SGCN), and Species of Greatest Inventory Need (SGIN). Changes to the SWAP will redirect priorities in terms of the most at-risk species and community types. Any SWAP revisions will be submitted to the USFWS annually for review and approval.

All of the Tier I CTGCN, 27 top priority Focal Areas, and priority SGCN in the SWAP are equal conservation priorities for Montana. In addition, no conservation action identified in this document is more or less important than any other, as successful conservation of the communities and species in greatest need will require addressing all of these concerns over time. In addition, singling out certain objectives reduces the flexibility of FWP and partners to take advantage of conservation opportunities as they occur. This is precisely why Tier II community types and Tier II Focal Areas were identified. While Tier I areas are the highest priorities, opportunities to implement conservation actions in Tier II areas should not be ignored. It is important to ensure this SWAP is flexible so that FWP and partners can capitalize on opportunities as they arise.

The biggest challenge to completely and successfully implement the SWAP is the amount of funding needed and the lack thereof. In addition, the unstable nature of funding serves as a roadblock that could prevent FWP and its partners from committing to long-term projects. It is anticipated that this funding status will remain the same in the near future.

Because of the funding challenge, a new Implementation Plan to guide FWP prioritization and work planning processes will be developed immediately following SWAP approval by USFWS. The Implementation Plan will be reviewed and evaluated by FWP every three years.

Partners are encouraged to use this plan to prioritize and implement projects led by their agencies and/or organizations. Incorporating SWAP actions into partner project or work plans will help implement this SWAP at a statewide scale. Collaborative projects carried out by multiple partners, will help ensure that support is wide-ranging and funding is leveraged to the fullest extent possible. Collaborators are encouraged to seek out varied partnerships in order to implement a wide array of SWAP actions.

### **HOW TO USE THIS PLAN**

This SWAP is divided into four main components.

1. [Community Types of Greatest Conservation Need \(CTGCN\)](#) identify habitats and related fish and wildlife that are in greatest need of conservation throughout Montana. Often, fish and wildlife within a community type face similar conservation concerns. Implementing conservation strategies at this level will comprehensively benefit many fish and wildlife species.

Those who wish to work on a large landscape scale and address wide-ranging impacts should start with this SWAP component. Example: fragmentation of grasslands.

2. [Focal Areas](#), a smaller scale than CTGCN, these will guide attention to specific geographical areas of Montana that are in greatest need of conservation.

This component would be a good place to start to help create local partnerships to solve specific issues in a localized area. Example: partnership to restore Arctic grayling to the Big Hole River.

3. [Species of Greatest Conservation Need \(SGCN\)](#) are species whose needs be specifically addressed through broad or finescale actions. However, some species' populations have declined so far or are so specialized, that conservation strategies aimed at Focal Areas or CTGCN may not be effective.

Organizations or agencies interested in species with needs that require direct action and otherwise might not be addressed through landscape scale efforts, should start with this component first. Example: impacts to harlequin duck breeding habitat.

4. [Species of Greatest Inventory Need \(SGIN\)](#) are species for which adequate occurrence data do not exist. Thus, the status of these species cannot accurately be determined.

These species might be a good focus for short-term inventory projects, such as for graduate student work. Focusing efforts on these species would help determine their status and their need for greater conservation efforts in Montana.

## METHODS

### COMMUNITY TYPES OF GREATEST CONSERVATION NEED

The Aquatic Technical Team (ATT) and Terrestrial Technical Team (TTT) were asked to review community types identified in the CFWCS (FWP 2006) and Ecological Systems developed by MNHP (MNHP 2013a) to help them identify and describe priority community types in the SWAP revision. The main consideration was defining the level of detail (e.g., scale) needed in a map layer that would best suit assessing community type conservation needs and identifying actions.

In addition to identifying community types, the Teams were asked to prioritize the types into three tiers based on level of conservation need. Both teams took different approaches on these tasks, as outlined below.

#### COMMUNITY TYPE TIER DEFINITIONS

Tier I. Greatest conservation need. There is a clear obligation to use resources to implement conservation actions that provide direct benefit to these community types.

Tier II: Moderate conservation need. Resources could be used to implement conservation actions that provide direct benefit to these community types.

Tier III: Lower conservation need. These areas may have existing adequate conservation and contribute to local conservation efforts, or they may provide buffers where they surround Tier I and Tier II community types.

#### AQUATIC COMMUNITY TYPES

The ATT decided to use the aquatic community descriptions that were identified in the CFWCS (FWP 2006). Aquatic communities were described as *Intermountain Valley Rivers*, *Intermountain Valley Streams*, *Mixed Source Rivers*, *Mountain Streams*, *Prairie Rivers*, *Prairie Streams*, *Lowland Lakes*, *Lowland Reservoirs*, *Mountain Lakes*, and *Mountain Reservoirs*.

Most aquatic SGCN in Montana are found in streams and rivers, so it follows that most research, survey, inventory, and management actions are conducted in these habitats. Because of this, the ATT decided to identify all streams and rivers as Tier I community types, all lakes as Tier II, and all reservoirs as Tier III. However, some lakes and reservoirs were elevated to Tier I if they were critical to the life cycle of certain SGCN ([Appendix G](#)).

Existing species lists within agency databases were used to identify species associated with each community type. The aquatic association lists were created by intersecting Fish Distribution – Lakes and Streams GIS data (FWP 2013c) with Aquatic Habitat Classifications for Montana Lakes and Streams (aquatic community types) GIS data (FWP 2005a) using a geoprocess in ArcMap. The resulting intersect tables were managed in a Microsoft Access database to create lists of species occurrences for each aquatic community type.

Though amphibian and reptile species spend the majority of their time in aquatic habitats, these species are maintained in terrestrial community type databases and are tracked as being associated with terrestrial community types (e.g., open water, wetlands). Therefore, these species will be addressed under terrestrial community types rather than aquatic community types.

### **TERRESTRIAL COMMUNITY TYPES**

Community types defined in the 2006 CFWCS (FWP 2006) were too broad and a finer scale was desired for the revision. Three levels of Ecological Systems (MNHP 2013a) were reviewed. Level Two Ecological Systems, which includes 21 community types, were selected to be used because it fit with the direction of the SWAP revision and provided the level of detail needed as identified by the TTT.

Several modifications were made to Level Two Ecological Systems for the purposes of display, analysis, and reporting. All five wetland community types (*Bog or Fen*, *Depressional Wetland*, *Forested Marsh*, *Herbaceous Marsh*, and *Wet Meadow*) were combined. At the request of technical team members, *Alpine Grassland* and *Alpine Sparse and Barren* were combined as were *Sagebrush Steppe* and *Sagebrush-dominated Shrubland*. In addition, six other landcover types were included and assessed as Ecological Systems. These were *Agriculture*, *Developed*, *Harvested Forest*, *Introduced Vegetation*, *Mining*, and *Recently Burned*. This resulted in 21 community types that were to be ranked ([Figure 1](#)).

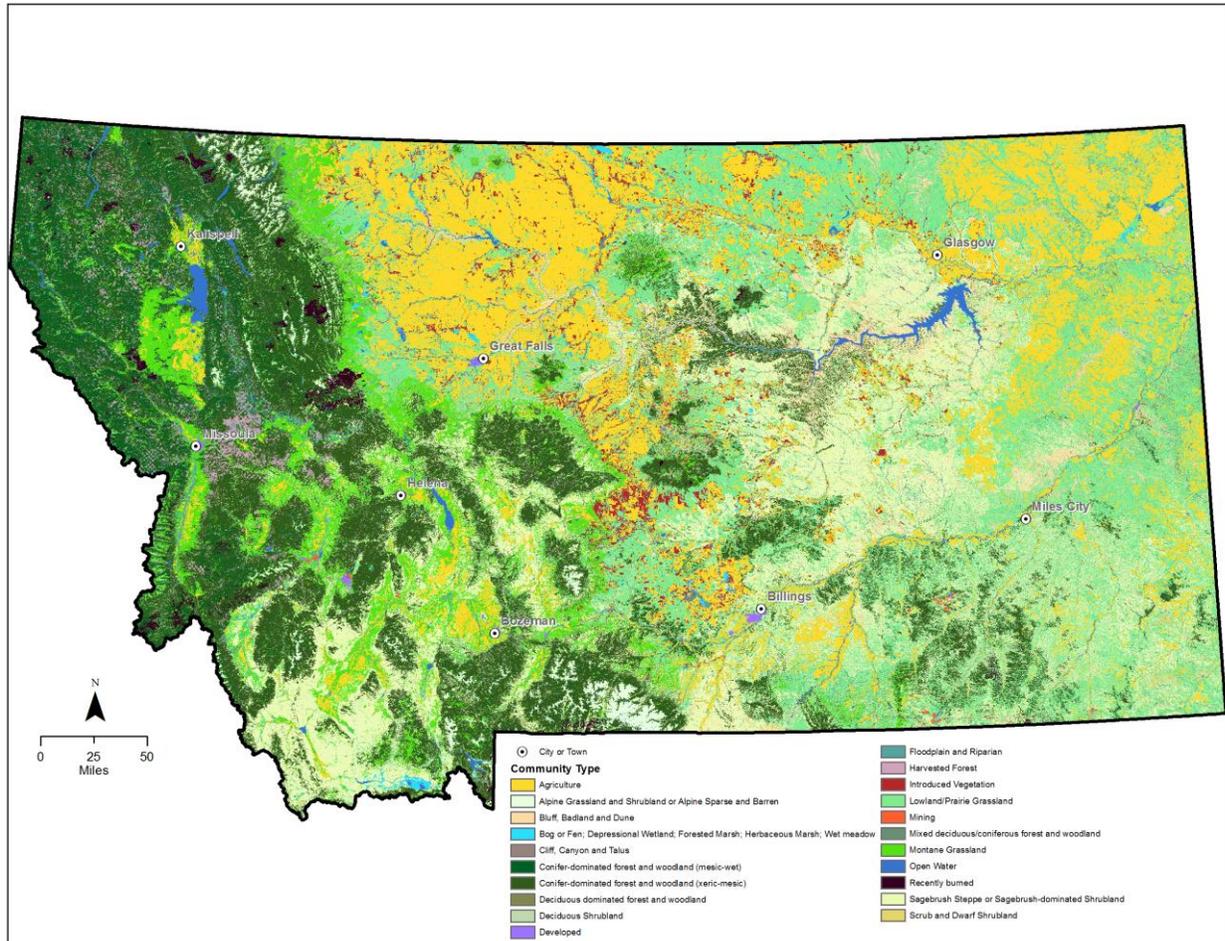


Figure 1. Community Types in Montana

Before ranking, the TTT further refined the community types by geographical location. It was clear that each community type was not equally valuable or equally threatened across its entire distribution in Montana. For example, grasslands in the eastern part of the state support many more SGCN and are affected by different threats than grasslands in the western part of the state. Omernik's Level III Ecoregions (Environmental Protection Agency 2013; [Figure 2](#)) were intersected using a geoprocess in ArcGIS 10.1 with Ecoregions as a way to identify and describe the geographical differences in community type. Seven Ecoregions were used to separate the 21 community types identified. Because not every community type was found in all seven Ecoregions, there were a total of 126 different community types to assess and rank for the entire state.

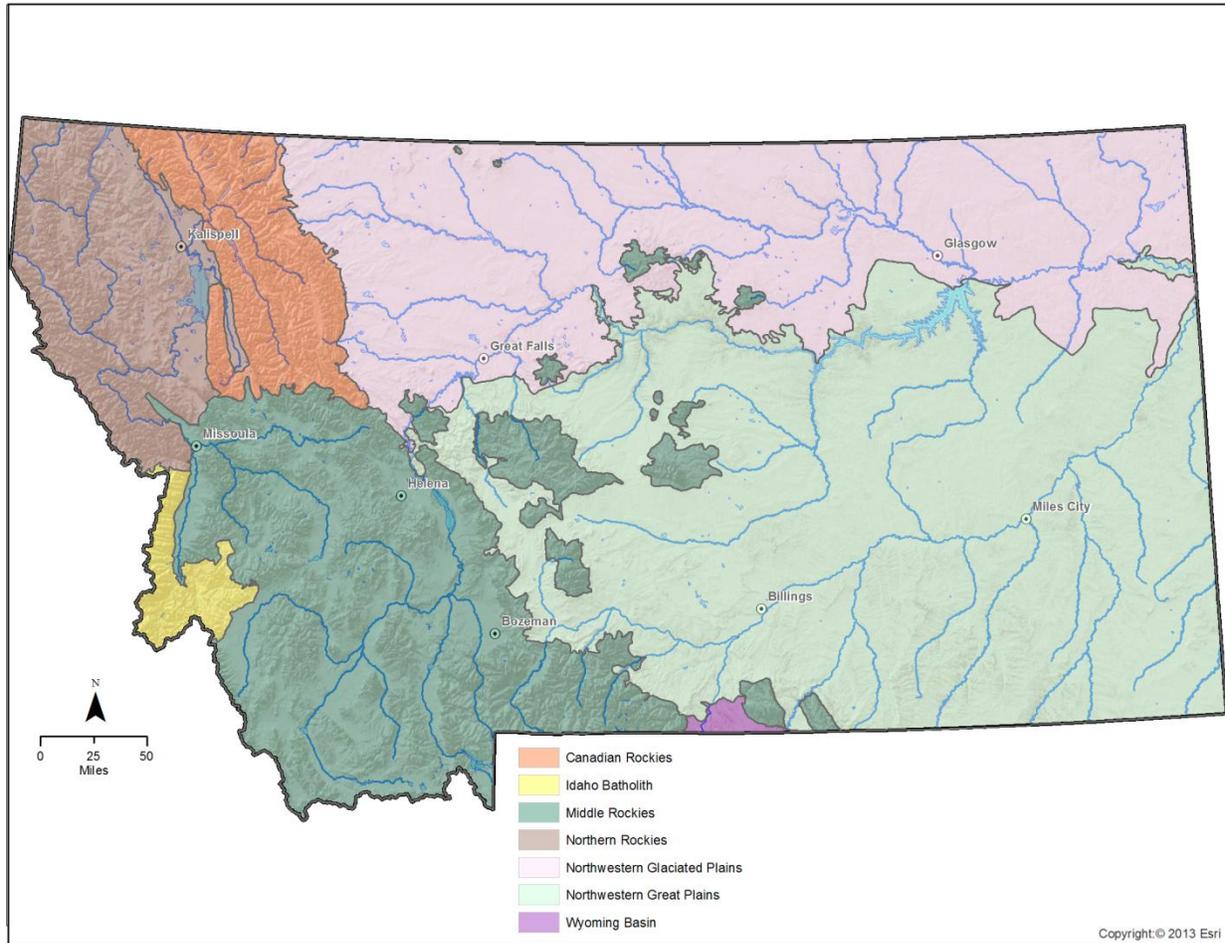


Figure 2. Omernik's Level III Ecoregions

The following rules were followed to assign each community type (by Ecoregion) to Tier I, II, or III. See [Appendix H](#) for the full list of tiered community types.

**Tier I.**

- T1a. *Floodplain and Riparian*, all *Wetland* types, and *Open Water* in every Ecoregion because of the biodiversity found in wet landscapes and the importance of water during different life cycles of species.
- T1b. Any community type that was associated with at least 66.7% of all SGCN within an Ecoregion.

**Tier II.**

- TIIa. Any community type that was associated with at least 10%, but less than 66.7%, of all SGCN within an Ecoregion.

### **Tier III.**

- TIIIa. Any community type that was associated with less than 10% of all SGCN within an Ecoregion.
- TIIIb. *Developed* because of the permanent modification of the habitat and the understanding that no SGCN naturally depends on this community type.

**Exceptions** – These exceptions do not apply to the following community types which are always either Tier I or Tier III: *Floodplain and Riparian*, all *Wetlands*, *Open Water*, and *Developed*.

- Ea. Any community type that had a landcover of 0.5% < 1% within an Ecoregion dropped one Tier, but no lower than Tier II.
- Eb. Any community type with less than 0.5% landcover in an Ecoregion was considered Tier III.
- Ec. If a community type within an Ecoregion had at least 1% landcover, it could be bumped up one tier if the majority of members on the technical team believed it should.

Existing species lists within agency databases were used to identify species associated with each community type. Species associations with ecological community types were identified by MNHP and FWP biologists, ecologists, and species experts during 2010-2012. Each species was assigned as being '*Commonly*' or '*Occasionally Associated*' with ecological community types based on a review of distribution records, species known range, expert knowledge and the Level Two Montana Land Cover Framework (MNHP 2013b; Vance 2010) GIS data. Only '*Commonly Associated*' community type-species associations were used to identify associations for the SWAP. These species-community type associations were managed in a Microsoft Access database to create a list of expected species occurrences for each terrestrial community type. Biologists reviewed the list for accuracy and changes were made as needed (i.e., presence, absence).

### **FOCAL AREAS**

Meetings in each of the seven FWP regions were convened to identify regional Focal Areas to guide attention to specific geographical areas of Montana that are in greatest need of conservation and to help focus conservation efforts in an increasingly inadequate funding environment. Invited experts (e.g., species, habitat, threats) were asked to delineate Focal Areas by considering several factors ([Appendix I](#)) within Hydrologic Unit Code (HUC) boundaries. HUCs were chosen as they are natural, ecological borders, rather than arbitrary lines drawn on maps. While directions were clear in *which* factors the teams needed to consider, it was left up to them as to *how* they should weigh the different factors. This was left open for geographical interpretation as threats, species assemblages, community types, and protections vary greatly between eastern and western Montana.

Focal Areas were delineated in ArcGIS for display and analysis. Ten (5<sup>th</sup> code) and eight (4<sup>th</sup> code) HUCs were selected by the technical teams in ArcGIS to initially identify the bounds of each Focal Area based on the factors in [Appendix I](#). When neighboring Focal Areas shared a

boundary, those boundaries were merged using a geoprocess in ArcGIS. Each Focal Area was then assessed individually to determine if logical boundary changes were needed. These changes often included clipping out existing protected areas (i.e., Designated Wilderness, Designated Roadless Area, Designated Wilderness Study Area, USFWS National Wildlife Refuge (NWR), under conservation easement, State Wildlife Management Area (WMA)). Specific border refinements were also made in some areas using existing features such as natural borders (e.g., road, dam, parcel boundary, community type) and species' ranges (polygon data), Large Intact Landscape Blocks (LILB), or areas of contiguous intact habitat identified in FWP's [Crucial Areas Planning System](#) (CAPS; FWP 2010). In FWP Region 3, blocks of land that connect important habitats for grizzly bear (FWP 2010) and/or wolverine (Wildlife Conservation Society 2007) were also included within HUCs during the process of refining borders for Focal Areas.

After regional Focal Areas were identified, the technical teams used the factors found in [Appendix I](#) to elevate some Focal Areas to a higher priority (Tier I). While it is clear that Tier I Focal Areas are a higher priority than Tier II, the technical teams thought it important to identify Focal Areas that have moderate conservation need (Tier II) in order to take advantage of opportunities as they arise. Finally, Regional FWP staff prioritized the Tier I Focal Areas also using the factors described in [Appendix I](#).

#### **FOCAL AREA TIER DEFINITIONS**

All Focal Areas were ranked by the technical teams and identified as Tier I or Tier II.

Tier I. Greatest conservation need. There is a clear obligation to use resources to implement conservation actions that provide direct benefit to these areas.

Tier II: Moderate conservation need. Resources could be used to implement conservation actions that provide direct benefit to these areas.

#### **SPECIES OF GREATEST CONSERVATION NEED**

Rather than develop a new method to identify SGCN, the technical teams decided to use the Species of Concern (SOC) list, which is developed using a protocol and process that FWP and MNHP have been employing for a decade (MNHP and FWP 2004; [http://mtnhp.org/animal/2004\\_SOC\\_Criteria.pdf](http://mtnhp.org/animal/2004_SOC_Criteria.pdf)). Please see the link for the specific criteria. This method is a standardized ranking system to denote Global and State ranks (Master et al. 2003).

Before adopting the SOC list as the SWAP SGCN list, the technical teams first reviewed a list of all native vertebrates, mussels, and crayfish found in Montana and made recommendations to MNHP regarding which species should be reviewed for inclusion or removal from the SOC list. These recommendations were largely based on new information learned since a species was last reviewed.

Though the entire SOC list was adopted as the SGCN list, conservation actions were developed only for species that were assigned a State Rank of S1 or S2. The S1 rank indicates a species is “at high risk because of extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.” The S2 rank identifies that species are “at risk because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state.” For more information on rankings, please see <http://fieldguide.mt.gov/statusCodes.aspx#msrc:rank>. The decision only to develop actions for S1 and S2 SGCN was made to ensure that limited resources were used to first focus on the most at risk species. While these species were chosen to focus conservation efforts, it is not implied that the other SGCN (i.e., species with a State Rank of S3, “potentially at risk”) are excluded.

MNHP and FWP biologists review the SOC list annually in consultation with representatives of the Montana Chapter of The Wildlife Society, the Montana Chapter of the American Fisheries Society (AFS), and other experts. In addition, individual species are reviewed as they are petitioned for inclusion on or removal from the list. Because of the frequency of reviews, the SOC list is a dynamic list. If changes are made to the SOC list, the SGCN list will change as well. FWP will submit a letter to USFWS requesting approval of the change(s) no more than once per year.

During the initial planning stages, the FWP Steering Committee decided that the SWAP would not include Montana's invertebrate species. With nearly 1,000 species of aquatic invertebrates in the state, and at least twice that number of terrestrial invertebrates, it is impossible to develop a plan to comprehensively address invertebrate conservation in Montana. FWP and most of the partner agencies and organizations do not have the ability, capacity, or funding to properly address invertebrates and include them in this SWAP. Because many of the conservation actions identified use a landscape or habitat approach, many of the SOC invertebrates will benefit from actions taken.

Mussels and crayfish, however, were the only invertebrate species groups to be included because they fall under FWP jurisdiction and management per Montana Statutes, Title 87 (FWP 2011).

### **SPECIES OF GREATEST INVENTORY NEED**

In 2013, MNHP began maintaining another list in addition to the SOC list. This list identified species of highest inventory need because they either lacked baseline surveys or they had outdated surveys. This SWAP recognizes all SGCN on the MNHP highest inventory need list as being Species of Greatest Inventory Need (SGIN). In addition, Potential Species of Concern (PSOC) on this MNHP list are also considered to be SGIN in this SWAP. Because these species are data poor and potentially at risk, there is a need for them to be targeted for survey and inventory.

## **CONSERVATION ACTIONS**

While SWAPs generally have been species-centric, this revision is taking a different approach. Conservation actions have been developed for some SGCN, but the focus of this revision is to approach conservation by promoting actions that can be applied at a larger scale. It is worth reiterating that SWAPs are severely under-funded for all the work that is recommended. This broad approach will focus efforts within CTGCN and Focal Areas, so funding dollars can be used to address many species within one project. Approaching projects in this manner will provide benefits to several species at once rather than one species at a time.

The technical teams identified current impacts and future threats to CTGCN, Focal Areas, and SGCN, and then developed priority conservation actions to address and mitigate those impacts and threats. The actions developed for CTGCN are categorized and displayed by impact and threat. This is a much more concise way to represent this information, although a user may have to read through all of the actions to find the appropriate ones for their project.

These actions were either new ideas brought forth by the technical teams or taken from the CFWCS (FWP 2006) and other existing plans. Conservation actions were developed only for CTGCN (i.e., Tier I) and SGCN (State Rank S1 and S2). The technical teams have made every effort to use existing management plans to describe the conservation actions for species and community types in the SWAP update. In this way many different plans come together in order to facilitate collaboration.