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.

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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).

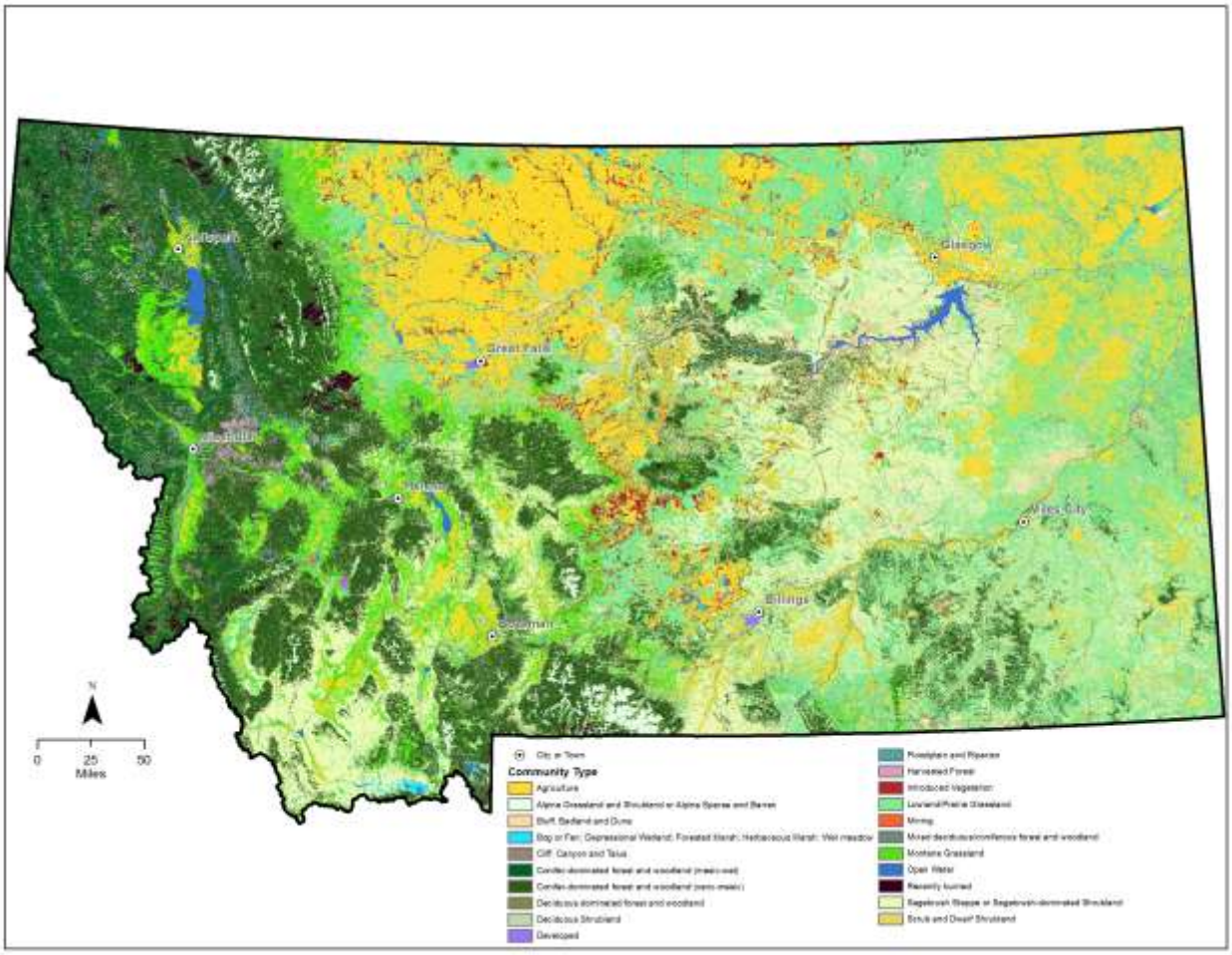

Figure 1. Community Types in Montana

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.

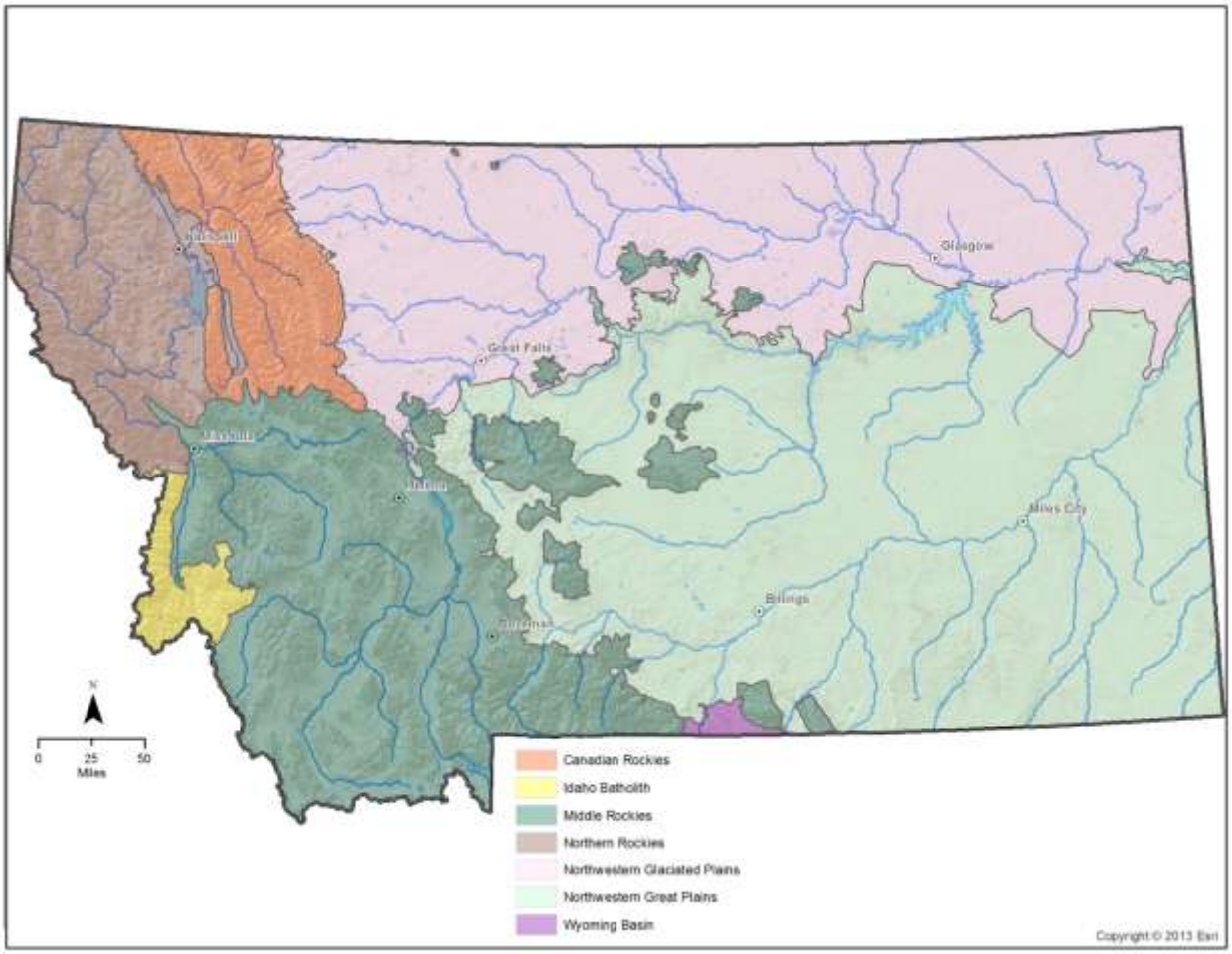

Figure 2. Omernik's Level III Ecoregions

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.

TIa. *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.

TIb. 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^{th} code) and eight (4^{th} 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). 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.

RESULTS

All of the information in this section is taken directly from the CFWCS (FWP 2006), Montana Field Guide (MNHP 2013a; MNHP and FWP 2013a), the SOC list (MNHP and FWP 2013b), and recommendations from the SWAP Technical Teams (personal communications). Any additional citations are listed.

AQUATIC COMMUNITY TYPES OF GREATEST CONSERVATION NEED

Conservation at the community type level provides the potential to leverage conservation resources to benefit large numbers of species. Community types also provide a way to associate numerous species through common habitat requirements. These communities often face similar conservation concerns that can be addressed simultaneously. The aquatic community types in this section have been identified as Tier I CTGCN, and efforts should be made to address the conservation actions identified for these community types across the state regardless if they fall within a Focal Area (Appendices J-M). However, the Focal Areas identify geographic areas that offer some of the greatest potential to conserve CTGCN and SGCN.

The ATT identified all streams and rivers as Tier I community types. In addition, 54 lakes and nine reservoirs were identified as Tier I community types because of their importance in part or all of the life cycle of certain SGCN. Please see the individual community types in this section for the Tier I maps.

INTERMOUNTAIN VALLEY RIVERS AND STREAMS

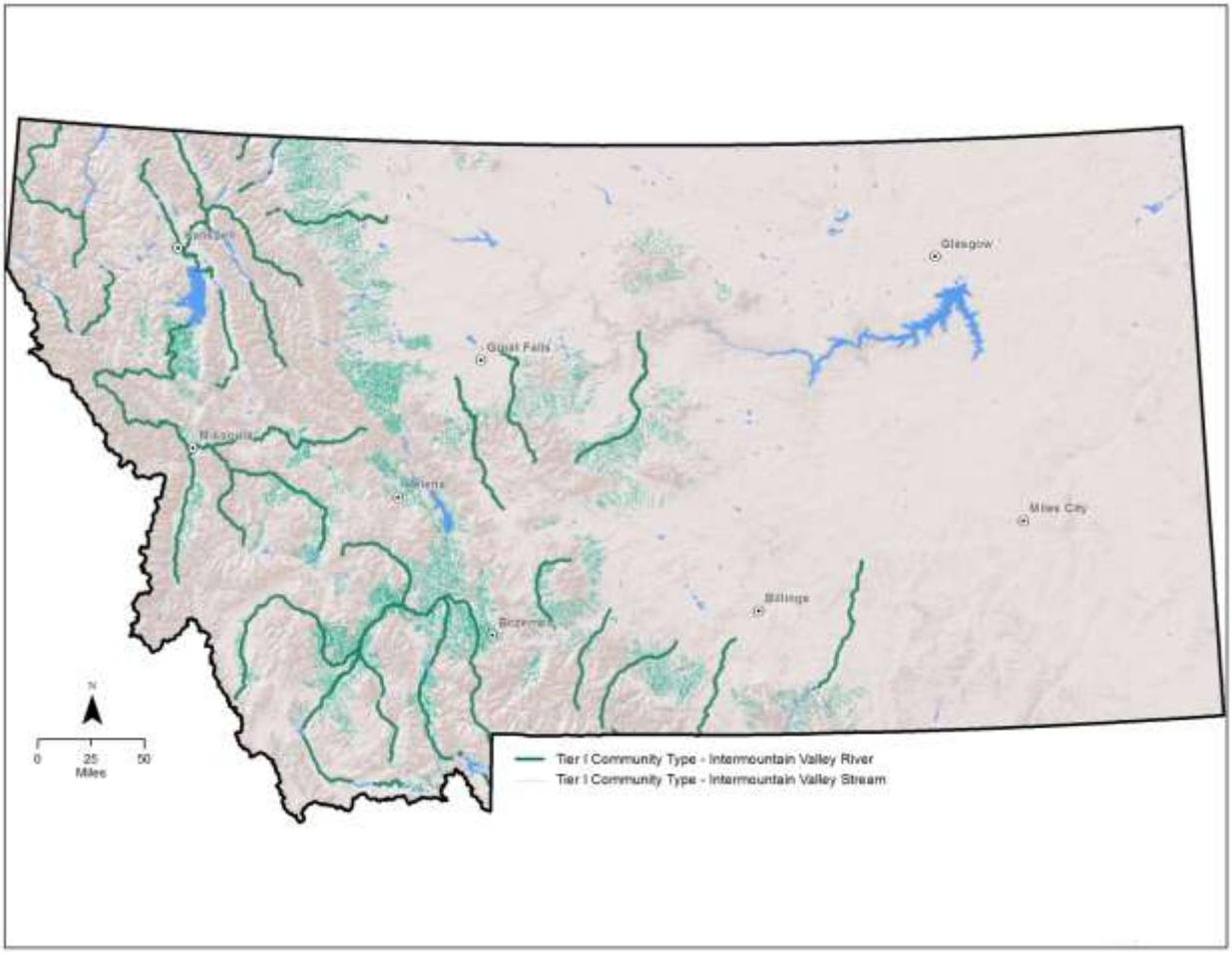

Figure 3. Distribution of Intermountain Valley Rivers and Streams

INTERMOUNTAIN VALLEY RIVERS **1,483 miles**

These low to moderate elevation rivers originate in the Canadian Rockies, Middle Rockies, and Northern Rockies Ecoregions, and continue into intermountain valleys or the eastern prairies. The lower reaches of these rivers are confined to open valleys. They have permanent flow, but several are regulated by impoundments (e.g., Madison, Flathead, Kootenai, Big Horn).

The upland areas are typically comprised of coniferous forest, grassland, and cottonwood-willow vegetation communities. Typical fish assemblages include cold water species including threatened bull trout, endangered white sturgeon, Arctic grayling, cutthroat trout, and various dace and sculpin. Sauger are found in the lower reaches of the Judith River.

Disruption of natural water flow, such as diversions, flood control, hydroelectric dams, bank armoring, and irrigation withdrawals have significantly impacted this community type. Below dams, reaches are impacted by altered water temperatures, introduced fish, unnatural water level fluctuations, and changes in sediment and nutrient transport.

Associated SGCN

Fish
Arctic Grayling
Blue Sucker
Bull Trout
Columbia River Redband Trout
Northern Redbelly Dace
Pygmy Whitefish
Sauger
Spoonhead Sculpin
Sturgeon Chub
Torrent Sculpin
Westslope Cutthroat Trout
White Sturgeon
Yellowstone Cutthroat Trout

Mollusk
Western Pearlshell

INTERMOUNTAIN VALLEY STREAMS **5,041 miles**

This community type is found in mountainous, moderate-to-high elevation (3,900-8,200 feet), forested, moderately confined-channel streams of the Canadian Rockies, Middle Rockies, and Northern Rockies Ecoregions. The stream sizes are generally small-to-medium (1^{st}-3^{rd} order, average wetted width is 10-16 feet). The average summer water temperature is <60°F. While there is permanent flow in these streams, there is strong seasonal variability due to melting snowpack. These streams are the transition from the headwater or forested stream communities to the lower foothills and intermontane rivers. This community type provides important habitat for Montana's native cutthroat trout populations. The substrate is dominated by cobbles and boulders, with gravel in the short pools. The geomorphology is normally a riffle/run/pool configuration. Large woody debris often provides channel material.

Disruption of natural water flow, such as diversions, flood control, hydroelectric dams, bank armoring, and irrigation withdrawals, have negatively impacted this community type the most (Winston et al. 1991). Below dams, reaches are impacted by altered water temperatures, introduced fish, unnatural water level fluctuations, and changes in sediment and nutrient transport.

Associated SGCN

Fish
Arctic Grayling
Bull Trout
Northern Redbelly Dace
Sauger
Westslope Cutthroat Trout
Yellowstone Cutthroat Trout

MIXED SYSTEMS **916 miles**

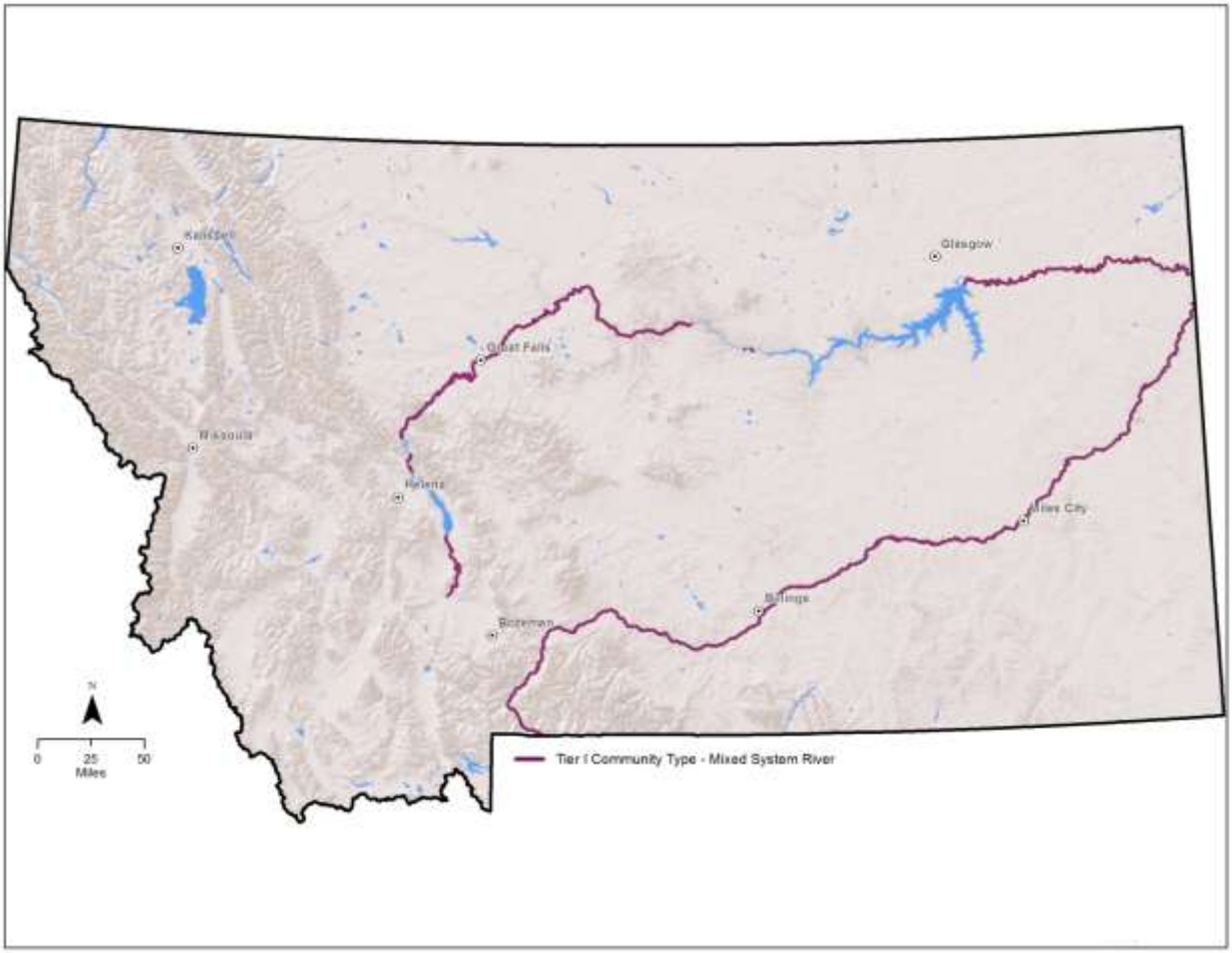

Figure 4. Distribution of Mixed Systems

These systems are characterized by lower gradient runs and riffles with small cobble, gravel, and sands. The upland habitat type is typically cottonwood valley bottoms.

Headwater reaches of this community type transition from cold water trout species to cool and warm water species in middle and lower reaches. This system is considered critical habitat for endangered pallid sturgeon, and a large number of SGCN including sauger, blue sucker, shortnose gar, paddlefish, and sicklefin chub.

Disruption of natural water flow, such as diversions, flood control, hydroelectric dams, bank armoring, and irrigation withdrawals, have significantly impacted this community type. Below dams, reaches are impacted by altered water temperatures, introduced fish, unnatural water level fluctuations, and changes in sediment and nutrient transport. Specifically, the Missouri River is significantly impacted by upper Missouri Reservoir dams and the Fort Peck dam. Likewise, tributary impoundments partially impact the lower Yellowstone, and low-head dams on the Yellowstone mainstem impact the movement of many SGCN.

Associated SGCN

Fish

Blue Sucker
Iowa Darter
Northern Redbelly Dace
Paddlefish
Pallid Sturgeon
Sauger
Shortnose Gar
Sicklefin Chub
Sturgeon Chub
Yellowstone Cutthroat Trout

MOUNTAIN STREAMS **31,789 miles**

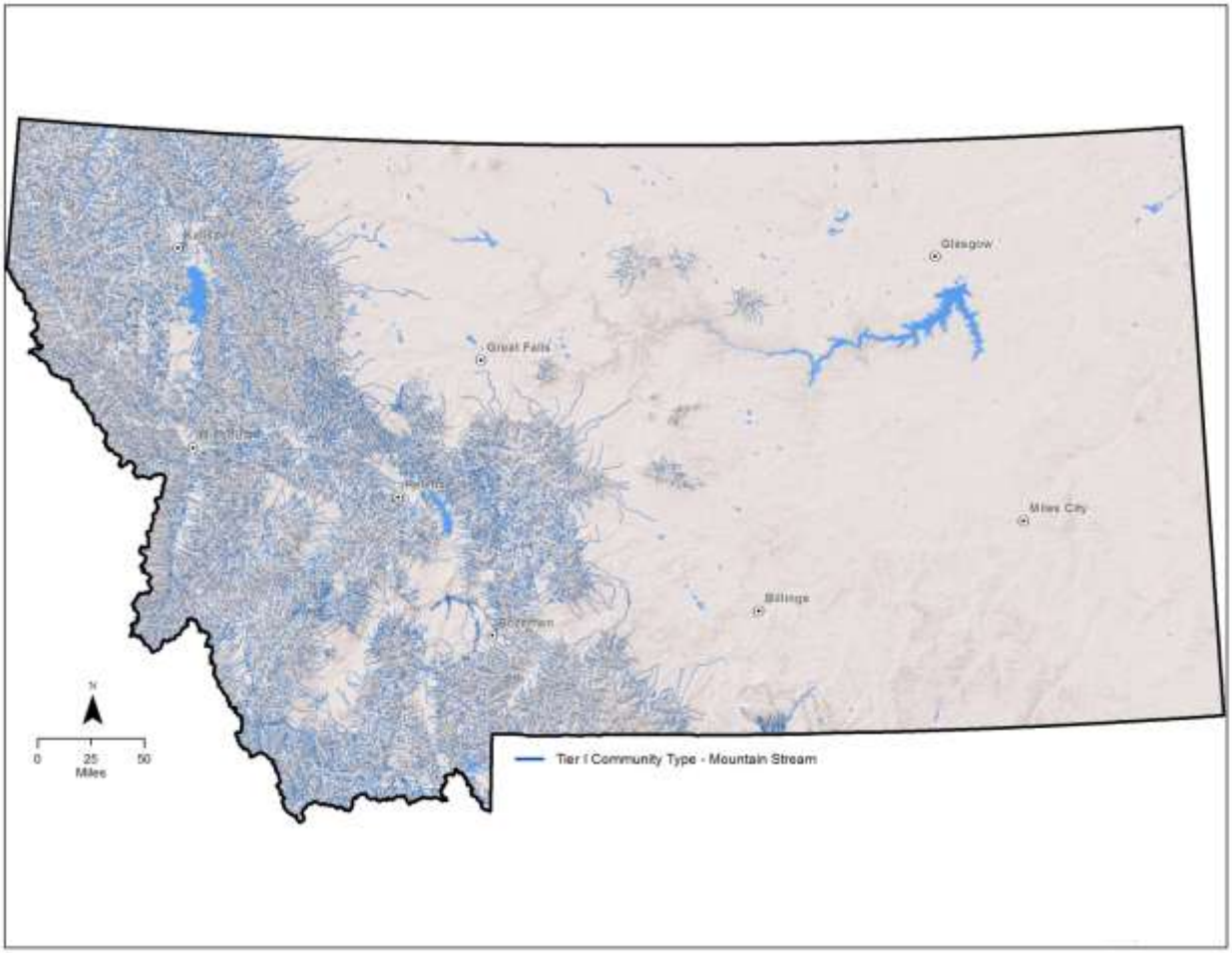

Figure 5. Distribution of Mountain Streams

Mountain streams of western and central Montana are typically cold and clear, and serve as the headwaters for all major river systems in Montana. Mountain streams often flow through montane conifer forests starting at the highest elevations, and can range diversely from high-alpine, steep-gradient reaches to low-gradient, meadow stream types (Stagliano 2005). Abundant native fish species thrive in these waters and are sought after by anglers from around the country.

Many of these native species are declining due to habitat degradation, dams, hybridization, overfishing, and being outcompeted by introduced salmonids. The remaining genetically pure stocks of Montana's Yellowstone cutthroat trout (YCT), westslope cutthroat trout (WCT), and bull trout are found in some of these streams.

Associated SGCN

Fish
Arctic Grayling
Bull Trout
Columbia River Redband Trout
Lake Trout
Northern Redbelly Dace
Northern Redbelly x Finescale Dace
Pygmy Whitefish
Torrent Sculpin
Westslope Cutthroat Trout
Yellowstone Cutthroat Trout

Mollusk
Western Pearlshell

PRAIRIE RIVERS AND PRAIRIE STREAMS

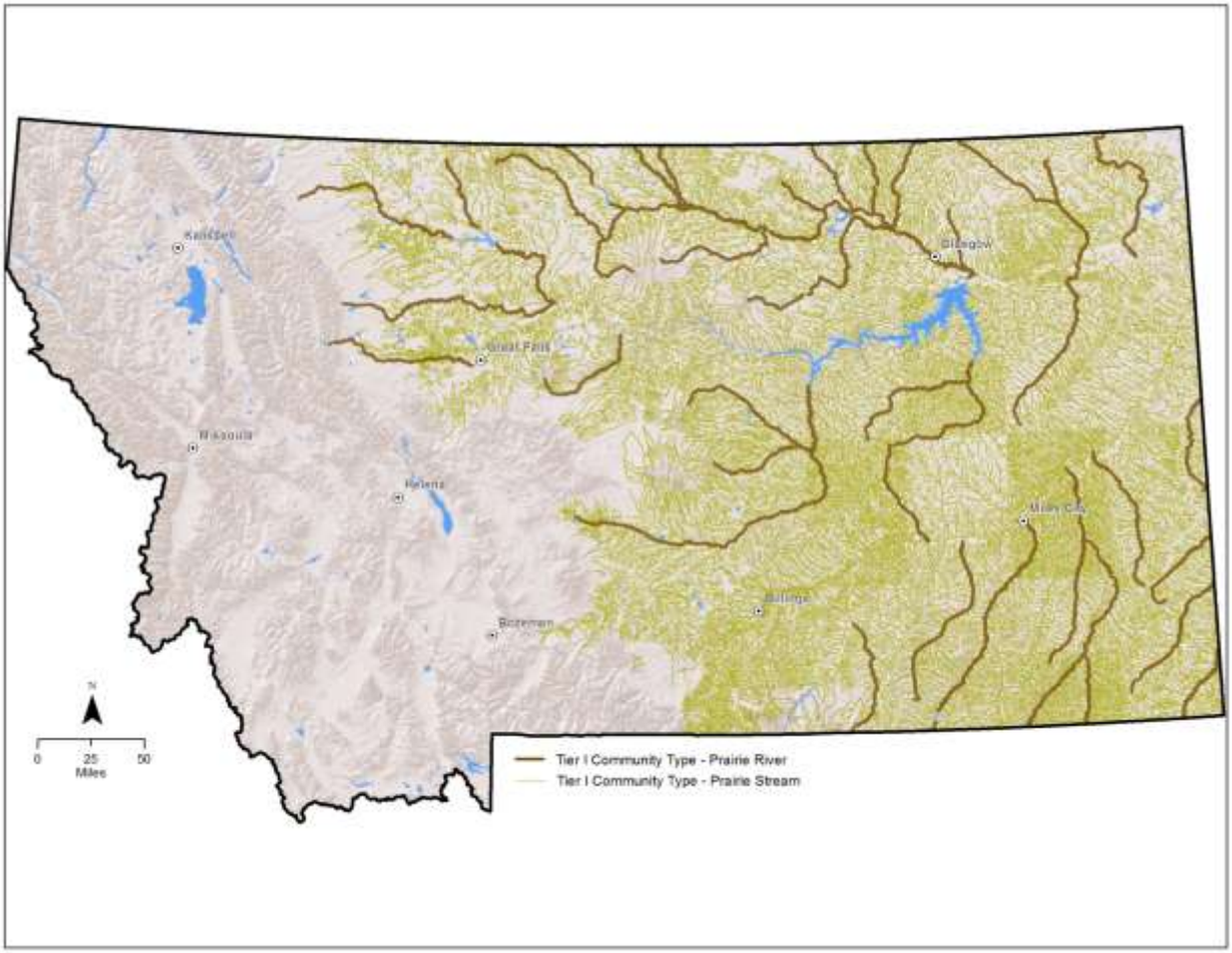

Figure 6. Distribution of Prairie Rivers and Prairie Streams

PRAIRIE RIVERS 3,382 miles

This low elevation (below 3,900 feet) community type is comprised of large (4th and 5th order and larger; >100 river miles long; 50-115 feet average wetted width) warm water rivers that have low to moderate gradients. The characteristics of this community type are long, deep runs; pools (two to seven feet deep); and interspaced riffles. The substrate is typically comprised of cobble riffles (when present) to sand and gravel dominated runs and pools. Important fish habitat is found in the lower reaches of the rivers where large woody debris, deep pools, and undercut banks are found. These lower sections of the rivers also provide many miles of spawning and nursery habitat for warm water fishes during the spring and early summer.

Disruption of natural water flow, such as diversions, flood control, hydroelectric dams, bank armoring, and irrigation withdrawals, have negatively impacted this community type the most (Winston et al. 1991). Barriers to necessary long distance spawning created by diversion dams and submerged spawning habitat by reservoirs have negatively impacted reproduction. Below dams, reaches are impacted by altered water temperatures, introduced fish, unnatural water level fluctuations, and changes in sediment and nutrient transport.

Associated SGCN

Fish
Blue Sucker
Iowa Darter
Northern Redbelly Dace
Northern Redbelly x Finescale Dace
Paddlefish
Pallid Sturgeon
Pearl Dace
Sauger
Shortnose Gar
Sicklefin Chub
Sturgeon Chub

PRAIRIE STREAMS **29,264 miles**

Prairie Streams in Montana have water either intermittently or permanently flowing through them in an otherwise dry region. These low-elevation streams east of the Rocky Mountains are warmer than their counterparts in western Montana and support a richer and quite different variety of fish. Many of these streams are slow moving and sometimes turbid and weedy, while those in the northern glaciated plains can be as clear as a mountain stream. They offer good rearing habitat for associated fish species, support many amphibians and reptiles, and are crucial for populations of terrestrial wildlife (Stagliano 2005).

The interruption of water flow, such as with small dams, water diversions, and stock ponds has negatively impacted Prairie Streams (Winston et al. 1991).

Associated SGCN

Fish
Iowa Darter
Northern Redbelly Dace
Northern Redbelly x Finescale Dace
Pearl Dace
Sauger
Sturgeon Chub

LAKES AND RESERVOIRS

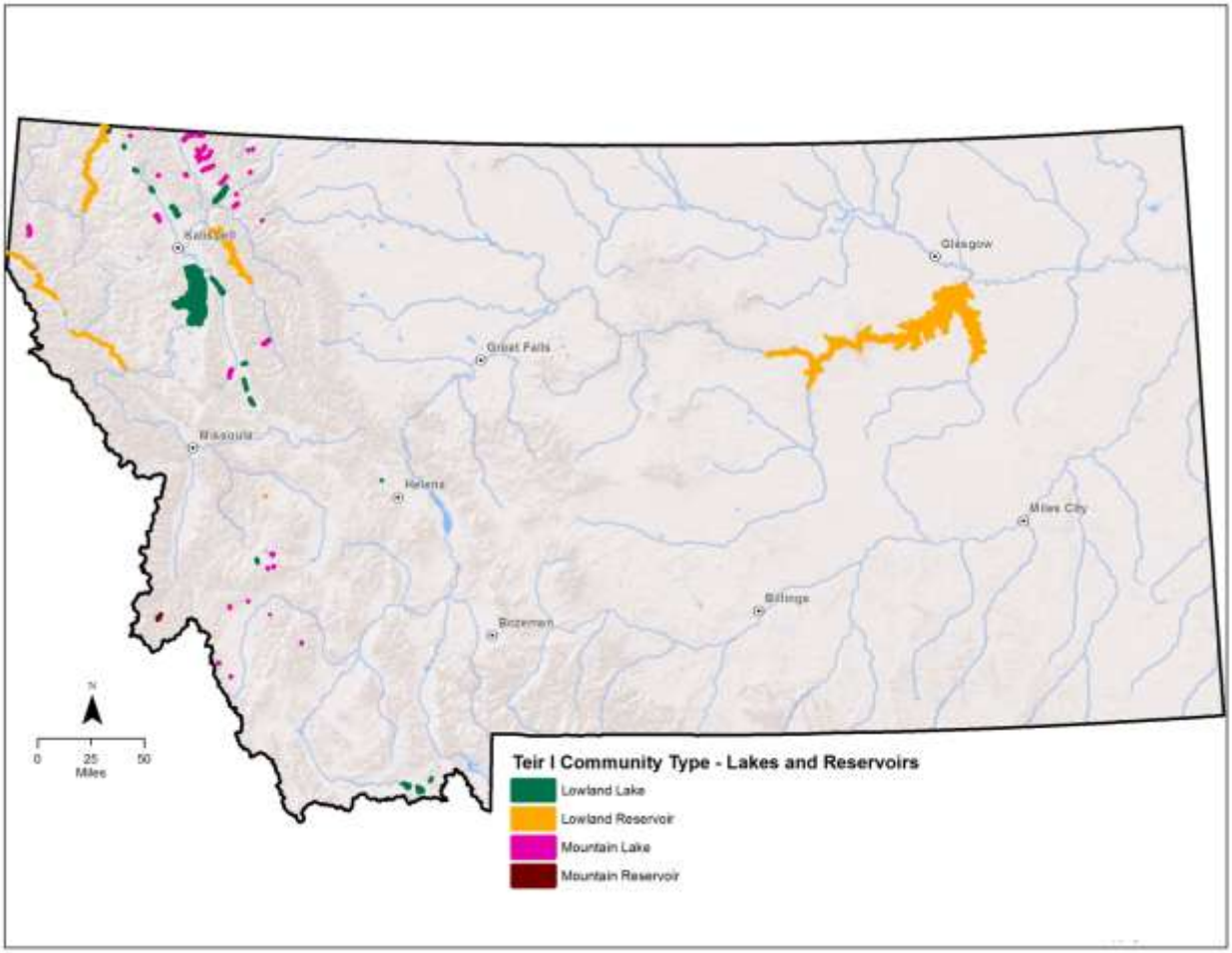

Figure 7. Distribution of Tier I Lakes and Reservoirs

In this SWAP, lakes were categorized as a Tier II community type and reservoirs as a Tier III. However, the technical team acknowledged that some lakes and reservoirs were critical to the persistence of some SGCN, and recommended that specific lakes and reservoirs be elevated to a Tier I community type. The list of these lakes and reservoirs can be found in Appendix G.

Lowland Lakes Associated SGCN

Fish

Arctic Grayling
Blue Sucker
Bull Trout
Lake Trout
Paddlefish
Pallid Sturgeon
Pygmy Whitefish
Sauger
Shortnose Gar
Westslope Cutthroat Trout
Yellowstone Cutthroat Trout

Lowland Reservoirs Associated SGCN

Fish
Arctic Grayling
Bull Trout
Lake Trout
Paddlefish
Pallid Sturgeon
Pygmy Whitefish
Sauger
Trout-perch
Westslope Cutthroat Trout
Yellowstone Cutthroat Trout

Mountain Lakes Associated SGCN

Fish
Arctic Grayling
Bull Trout
Columbia River Redband Trout
Lake Trout
Pygmy Whitefish
Westslope Cutthroat Trout
Yellowstone Cutthroat Trout

Mountain Reservoirs Associated SGCN

Fish
Arctic Grayling
Bull Trout
Columbia River Redband Trout
Westslope Cutthroat Trout
Yellowstone Cutthroat Trout

AQUATIC COMMUNITY TYPE IMPACTS, THREATS, AND ACTIONS

All of the aquatic community types in Montana have similar threats, though the magnitude and urgency of those threats may be different. Likewise, the conservation actions addressing those threats may be different depending on the community type and the geographic area. Some threats can have far-reaching impacts across the entire state affecting all CTGCN and share the same mitigating actions. It is not implied, however, that the identified impacts and threats are *always* impacts and threats. They are only considered so if they negatively affect CTGCN or SGCN.

The following impacts, threats, and corresponding actions were identified by the technical teams, other experts, and/or were summarized from existing management plans or recovery plans. This list does not represent a brainstorming exercise where every action is listed. Rather, this list represents priority actions that have a better likelihood of mitigating and minimizing the associated impacts and threats. Therefore, the listed conservation actions may not represent all actions that should be implemented within a community type or Focal Area. The list of actions should be reviewed for each project to determine relevancy to the project goals, and other actions should be considered if they may benefit the Focal Area, CTGCN, and/or SGCN in question. In addition, not all listed actions are suitable for every community type or situation. Each area must be assessed separately to determine which actions are appropriate.

Broad actions that can address multiple threats and impacts are identified first, and grouped by Association of Fish and Wildlife Agencies' (AFWA) recommended categories to measure effectiveness (AFWA 2011). Actions addressing specific impacts and threats follow.

BROAD ACTIONS FOR AQUATIC COMMUNITY TYPE IMPACTS AND THREATS

Collaboration and Outreach

- Actively participate with private landowners, watershed groups, non-governmental organizations (NGO), state and federal government agencies, local governments, tribes, land trusts, conservation districts, and other interested parties to: ensure work plans consider wildlife habitat needs during planning and implementation; ensure effective cooperation; work collaboratively; and to promote SGCN and habitat conservation while maintaining private land management objectives
- Incorporate Best Management Practices (BMP) when implementing actions outlined in this SWAP
- Encourage counties and communities to use FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a)
- Through press releases and participation in educational programs and public meetings, disseminate information regarding actions, issues, and science involving aquatic community types to foster advocacy for and promote CTGCN and SGCN
- Educate the public and land managers about the high values of CTGCN and how to better manage these habitats in ways that balance their management objectives with the conservation actions outlined in this SWAP
- Provide decision makers with data on impacts and threats to CTGCN and SGCN

- Promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004), whirling disease, and other waterborne diseases during research, monitoring, management, or recreational activities

Habitat Protection

- Continue to utilize Habitat Montana (FWP 1994), Future Fisheries, and other funding sources to support opportunities to conserve CTGCN through fee title acquisitions and conservation easements
- Work with willing landowners, agencies, and organizations to purchase land or acquire conservation easements that support SGCN to: provide access to resources, prevent further habitat fragmentation, and preserve natural habitat function

Planning and Review

- Assist in the review of land use proposals completed by land management agencies that may affect CTGCN and provide recommendations to minimize impacts to CTGCN and SGCN
- Work with other agencies, organizations, and interested parties to promote habitat conservation and management to benefit SGCN
- Consider SGCN and their habitats during development of management plans for WMAs, Fishing Access Sites, and State Parks
- Review proposed private ponds, 310 and 124 projects, and management plans to assure threats to fisheries are minimized
- Follow management direction outlined in the *Montana Statewide Fisheries Management Plan 2013-2018* (FWP 2013a)

Training and Technical Assistance

- Provide technical assistance to local landowners, conservation districts, and federal and state agencies as it pertains to maintaining and enhancing the aquatic habitat, function, and fish assemblage

SPECIFIC IMPACTS AND THREATS TO AQUATIC COMMUNITY TYPES

Water Management (all Aquatic Community Types)

- Altered temperature regime
- Dewatering
- Interbasin transfers
- Irrigation withdrawals
- Reservoir management
- Irrigation diversions and entrainment of fish
- Deteriorating conditions for migratory fish stocks
- Chemical and nutrient runoff

Actions:

- Ensure riparian resiliency through land use management and dam operations to improve instream flows, prevent dewatering, and improve and maintain natural stream form and function to accurately reflect SGCN needs
- Upgrade and mitigate cumulative impacts of irrigation diversions

- Investigate/pursue methods to reduce effects of dewatering and entrainment of fishes
- Reestablish natural flows and flows to intermittent reaches
- For Fort Peck Reservoir, follow guidance in the *Fort Peck Reservoir Fisheries Management Plan 2012-2022* (FWP 2012b)
- Work with appropriate agencies to maintain quality aquatic habitats and to mitigate impacts and threats to CTGCN and SGCN
- Develop a reservoir/river model to better facilitate spawning and rearing habitat needed for optimal growth and survival and to help guide the U.S. Army Corps of Engineers (USACOE) in their annual Master Manual operating planning process
- Work with other agencies and or landowners to upgrade or adopt more efficient agricultural practices and BMPs that benefit stream integrity
- Provide decision makers with data about pollution impacts on SGCN to help them set water quality standards

Habitat Fragmentation (all Aquatic Community Types)

- Downstream transport
- Fish barriers
- Housing/subdivision development
- Roads
- Railroads
- Loss of connectivity

Actions:

- Strategically evaluate opportunities to improve passage and restore connectivity (e.g., to lake system, between main rivers and tributaries) by identifying and removing migration barriers, improving native fish corridors, restoring habitat, and/or by installing fish ladders or other fish passage structures
- Improve minimum reservoir elevations and improve flow in intermittent reach above reservoirs
- Review and comment on subdivision requests that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a)
- Prioritize conservation easements and acquisitions adjacent to current conservation investments in order to create contiguous protected habitat that provide habitat linkages across large landscapes

Riparian/Water Body Management (all Aquatic Community Types)

- Incompatible grazing practices
- Incompatible range management practices
- Habitat degradation
- Natural sedimentation
- Rip-rap
- Incompatible timber harvest practices
- Channelization
- Fire recovery
- Landslides
- Encroachment
- Lake eutrophication
- Extirpated or low SGCN populations

Actions:

- Support agency and private conservation activities and management practices that encourage and support sustainable land management practices, maintain or improve riparian vegetation, and maintain streambank and channel stability in excellent condition
- Evaluate forestry BMPs with regards to riparian function and make recommendations to modify if appropriate; support BMPs that promote riparian health
- Participate in land use planning efforts and review proposed actions in drainages to ensure that negative impacts to aquatic CTGCN and SGCN are minimized
- Develop reservoir/river models to better facilitate spawning and rearing habitat needed for optimal growth and survival of associated SGCN
- Encourage and support habitat improvement projects and projects to restore degraded habitat within CTGCN
- Work with willing landowners, land management agencies, conservation districts, watershed groups, and other interested parties on habitat projects using Habitat Montana (FWP 1994), Future Fisheries, SWG, and other funding sources to conserve and promote healthy riparian habitats beneficial to SGCN and overall community type
- Work with counties to update and improve floodplain management to protect habitat important to SGCN
- Identify and remove migration barriers in critical SGCN corridors

Pollution/contamination of Resources (all Aquatic Community Types)

- Coal, oil, gas, Coal Bed Methane, and bentonite exploration and extraction
- Mine contamination
- Urban runoff

Actions:

- Review and comment on energy related development projects that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (In prep)
- Work with the U.S. Forest Service (USFS) and the Department of Environmental Quality in the development of mine clean-up plans and metals reduction (particularly Hg) and plans to limit runoff and groundwater depletion

Wind Energy (all Aquatic Community Types)

- Habitat fragmentation

Actions:

- Review and comment on energy related development projects that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep)

Non-native Species (all Aquatic Community Types)

- Illegal introductions
- Competition, predation, and hybridization with native species
- Barrier loss
- Expansion of non-native species
- Aquatic Nuisance Species (ANS)
- Nuisance blooms of *Didymosphenia geminate*

Actions:

- Replacement and/or construction and monitoring of fish passage barriers to reduce non-native species movement into areas where they currently do not occur
- Eliminate competing fish species by piscicides, trapping, or electrofishing where they are threatening objectives for CTGCN and/or SGCN
- Prevent illegal introductions and prohibit transport and use of live bait between drainages
- Stock sterile non-native fish for angler harvest
- Manage harvest regulations for the benefit of SGCN
- Protect native species through habitat protection and enhancement and restore or introduce SGCN into suitable waters
- Continue angler education efforts and ANS check stations
- To avoid spread of aquatic invasive species, follow guidance in *Montana's Aquatic Nuisance Species Management Plan* (Montana ANS Technical Committee 2002) and updates or revisions to the plan

Climate Change (all Community Types)

- Habitat alteration (e.g., temperature and precipitation changes)

Actions:

- Continue to evaluate current climate science models and recommended actions
- Continue or establish protocols to monitor thermal data, water flow, and conduct insect surveys to detect change
- Continue efforts to ensure adequate stream flows (e.g., protect instream flows, water leasing)

Harvest of SGCN (Intermountain Rivers and Streams, Mountain Streams, Lowland and Mountain Lakes)

- Angling pressure (localized)
- Illegal harvest (localized)

Actions:

- Continue to make recommendations for harvest regulations to minimize impacts to important populations of SGCN
- Increase enforcement of existing harvest regulations in areas where heavy pressure and illegal harvest are impacting populations
- Educate anglers on proper catch and release methods and correct fish identification

TERRESTRIAL COMMUNITY TYPES OF GREATEST CONSERVATION NEED

All of the information in this section is taken directly from the CFWCS (FWP 2006), Montana Field Guide (MNHP 2013a; MNHP and FWP 2013a), the SOC list (MNHP and FWP 2013b), and recommendations from the SWAP Technical Teams (personal communications). Any additional citations are listed.

Conservation at the community type level provides the potential to leverage conservation resources to benefit large numbers of species. Community types also provide a way to associate numerous species through common habitat requirements. These communities often face similar conservation concerns that can be addressed simultaneously. The terrestrial community types in this section have been identified as Tier I CTGCN, and efforts should be made to address the conservation actions identified for these community types across an Ecoregion regardless if they fall within a Focal Area (Appendices J-M). Focal Areas identify geographic areas that would be the highest priority to focus conservation efforts to conserve CTGCN and SGCN.

Twelve of the 21 unique terrestrial community types across the seven Ecoregions were identified as Tier I. Please note that community types may be found in Ecoregions other than what is depicted on the maps. Only locations where the community types are considered Tier I are displayed and addressed (see Terrestrial Community Types under Methods).

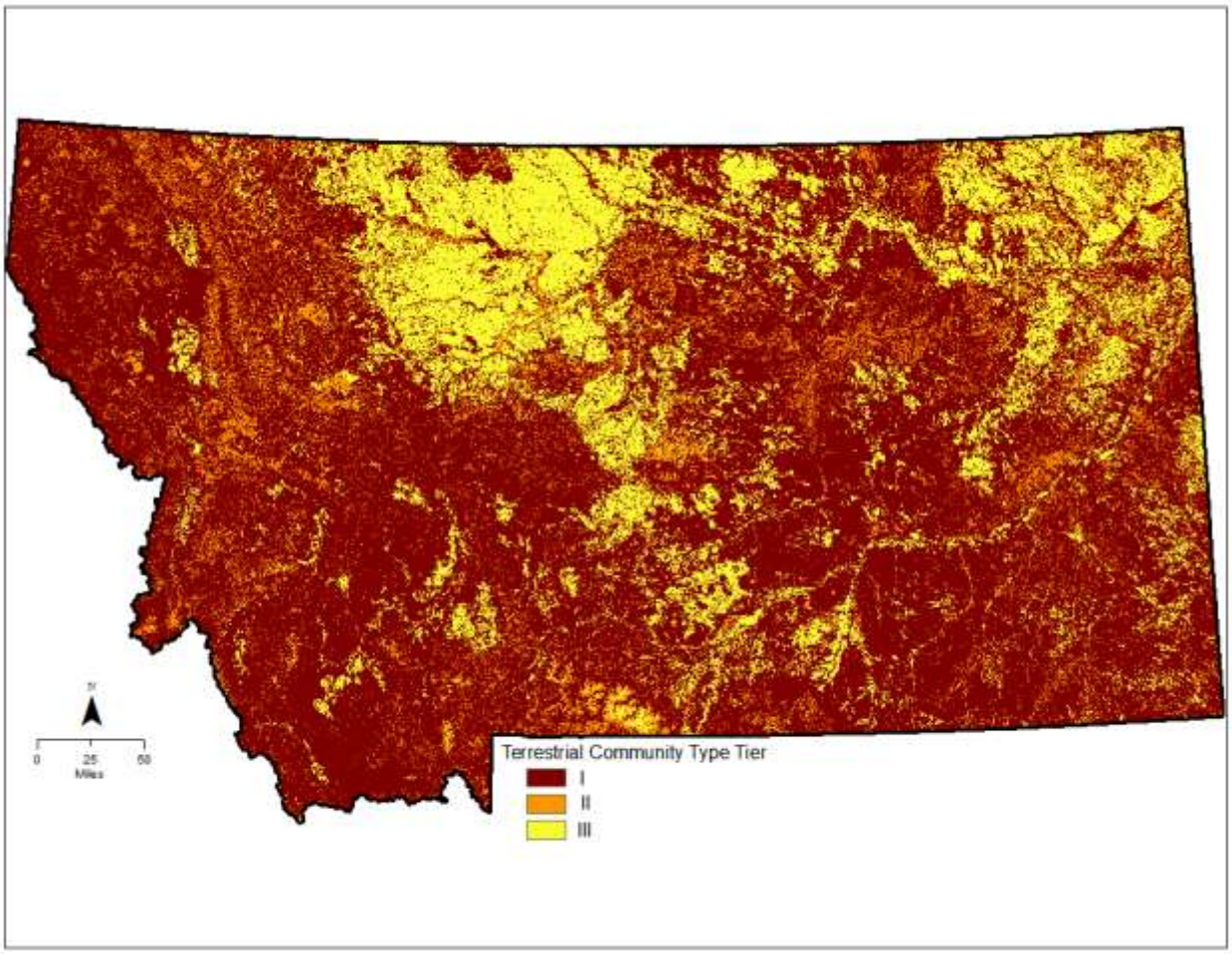

Figure 8. Overall terrestrial community type tiers

FLOODPLAIN AND RIPARIAN **5,059 miles^2**
All Ecoregions **3.4% landcover**

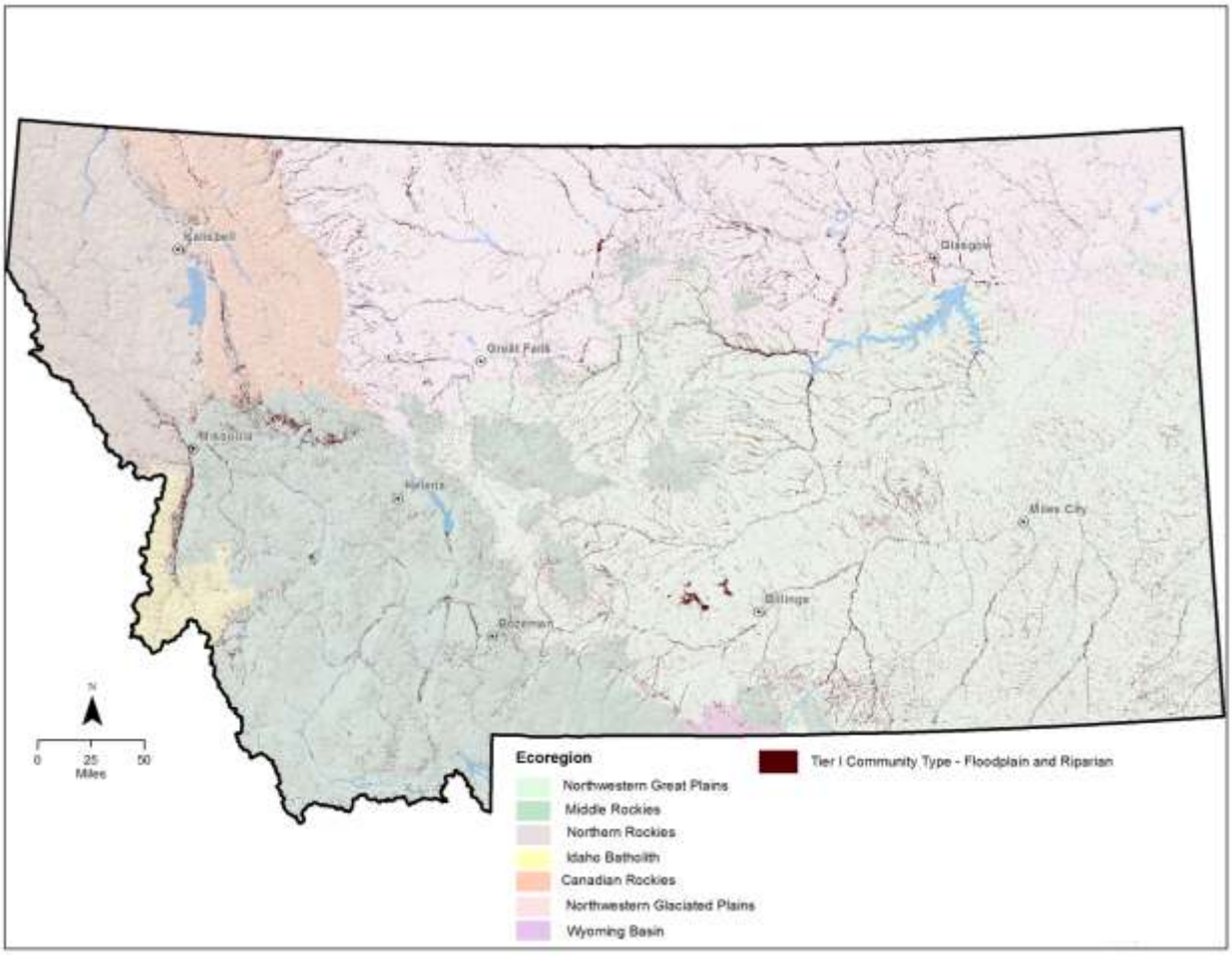

Figure 9. Distribution of Floodplain and Riparian Community Type

This community type is found throughout Montana, adjacent or immediately upland from rivers, and greatly varies in species composition, elevation, soil type, protections, and threats.

Due to the complexity of Floodplain and Riparian systems, each site should be assessed with a site specific approach (e.g., objective, size). Often multiple tools will be needed in combination to reach the specific objectives and to protect, enhance, create, restore and/or improve the functionality of the floodplain and riparian system.

Completing the National Wetland Inventory and riparian habitat mapping would help guide management of this community type.

Associated SGCN

Amphibians
Coeur d'Alene Salamander
Great Plains Toad
Idaho Giant Salamander
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
Alder Flycatcher
American Bittern
Baird's Sparrow
Black-backed Woodpecker
Black-billed Cuckoo
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Boreal Chickadee
Brown Creeper
Burrowing Owl
Cassin's Finch
Clark's Nutcracker
Common Tern
Evening Grosbeak
Ferruginous Hawk
Flammulated Owl
Franklin's Gull
Golden Eagle
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Green-tailed Towhee
Harlequin Duck
Le Conte's Sparrow
Least Tern
Lewis's Woodpecker
Loggerhead Shrike
Mountain Plover
Nelson's Sharp-tailed Sparrow
Northern Goshawk
Northern Hawk Owl
Peregrine Falcon
Pileated Woodpecker
Pinyon Jay
Piping Plover
Red-headed Woodpecker
Sharp-tailed Grouse
Varied Thrush
Veery
White-faced Ibis
Yellow-billed Cuckoo

Mammals
Arctic Shrew
Bison
Canada Lynx
Dwarf Shrew
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Northern Bog Lemming
Northern Short-tailed Shrew
Pallid Bat
Preble's Shrew
Pygmy Shrew
Spotted Bat
Townsend's Big-eared Bat
Wolverine

Reptiles
Greater Short-horned Lizard
Milksnake
Northern Alligator Lizard
Smooth Greensnake
Snapping Turtle
Spiny Softshell
Western Hog-nosed Snake
Western Skink

OPEN WATER **1,294 miles^2**
All Ecoregions **0.9% landcover**

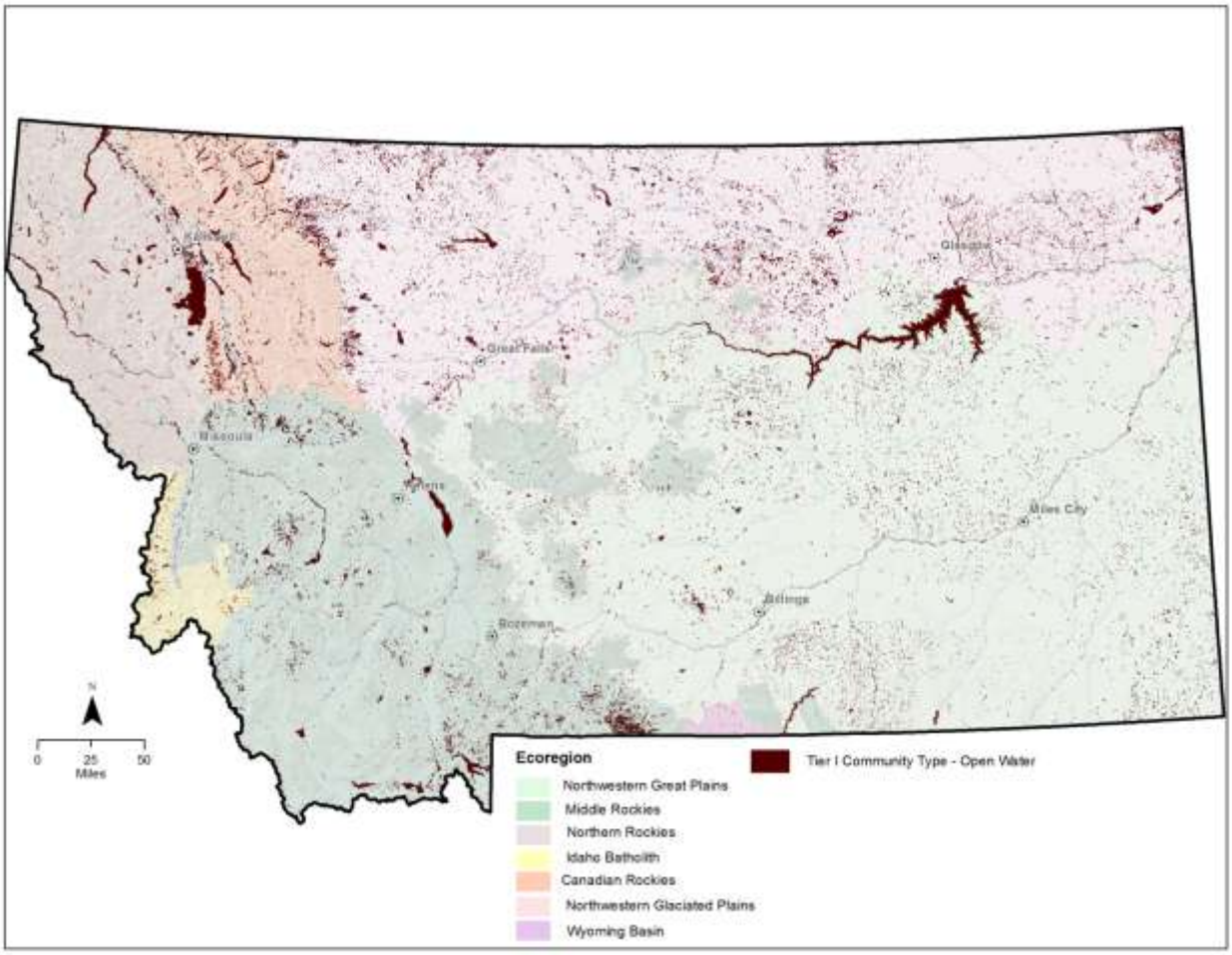

Figure 10. Distribution of Open Water Community Type

The Open Water community type includes natural and manmade lakes, reservoirs, large ponds, and the surface areas of rivers. Medium to large rivers in this community type are generally found in low-lying valley bottoms. All of these water features generally have less than 25% vegetation cover or bare soil (e.g., sandbars). The water is still or flowing and is absent of emergent vegetation except around the edges. Geysers and Hot Springs fall under the Open Water community type as well, however less than one square mile is classified as Geysers and Hot Springs in the 2013 Montana Land Cover layers. Because of the small area occupied, and because no SGCN is dependent on Geysers and Hot Springs, they are not considered in this discussion of Open Water.

Due to the complexity of Open Water systems, each site should be assessed with a site specific approach (e.g., objective, size). Often multiple tools will be needed in combination to reach the specific objectives and to protect, enhance, create, restore and/or improve the functionality of the open water system.

Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
American Bittern
American White Pelican
Black Swift
Black Tern
Black-crowned Night-Heron
Black-necked Stilt
Caspian Tern
Clark's Grebe
Common Loon
Common Tern
Forster's Tern
Franklin's Gull
Harlequin Duck
Horned Grebe
Least Tern
Peregrine Falcon
Piping Plover
Sedge Wren
Trumpeter Swan
White-faced Ibis

Mammals
Hoary Bat
Little Brown Myotis
Spotted Bat
Townsend's Big-eared Bat

Reptiles
Smooth Greensnake
Snapping Turtle
Spiny Softshell

WETLANDS **835 miles^2**
All Ecoregions **0.6% landcover**

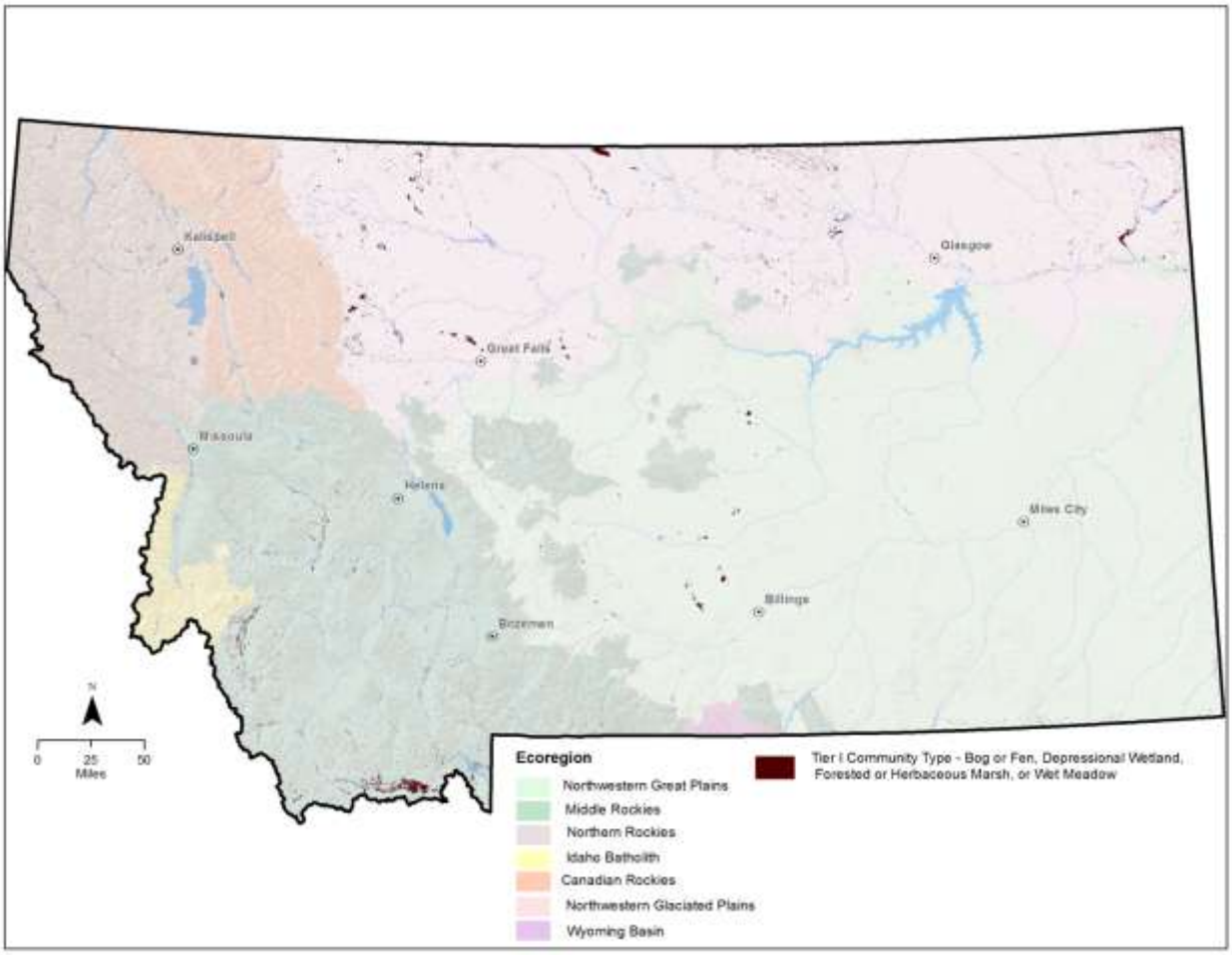

Figure 11. Distribution of Wetland Community Types

In Montana, there are five types of wetland community types: Bog and Fen, Forested Marsh, Herbaceous Marsh, Wet Meadow, and Depressional Wetland. While somewhat different in SGCN associations and locations in the state, most of these types are impacted by very similar threats, so they were addressed together.

Due to the complexity of wetland creation, enhancement, restoration, and the wide variety of wetland types, each site should be assessed with a site specific approach (e.g., objective, size). Often multiple tools will be needed in combination to reach the specific objectives and to protect, enhance, create, restore and/or improve the functionality of the wetland system.

Completing the National Wetland Inventory would help guide management of this community type.

Bog or Fen Associated SGCN

Amphibians
Western Toad

Birds
Alder Flycatcher
American Bittern
Clark's Nutcracker
Great Blue Heron
Great Gray Owl
Le Conte's Sparrow
Northern Hawk Owl
Varied Thrush

Mammals
Fisher
Fringed Myotis
Grizzly Bear
Little Brown Myotis
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat

Depressional Wetland Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
Alder Flycatcher
American Bittern
American White Pelican
Baird's Sparrow
Black Tern
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Clark's Grebe
Common Tern
Evening Grosbeak
Ferruginous Hawk
Forster's Tern
Franklin's Gull
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Horned Grebe
Le Conte's Sparrow
Loggerhead Shrike
Nelson's Sharp-tailed Sparrow
Northern Goshawk
Northern Hawk Owl
Peregrine Falcon
Piping Plover
Sedge Wren
Varied Thrush
White-faced Ibis

Mammals
Arctic Shrew
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Northern Short-tailed Shrew
Preble's Shrew
Pygmy Shrew
Spotted Bat
Townsend's Big-eared Bat

Reptiles
Smooth Greensnake
Western Hog-nosed Snake

Forested Marsh Associated SGCN

Amphibians
Western Toad

Birds
Alder Flycatcher
Brown Creeper
Great Blue Heron
Northern Goshawk
Northern Hawk Owl
Pileated Woodpecker
Varied Thrush

Mammals
Fisher
Fringed Myotis
Grizzly Bear
Little Brown Myotis
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat

Herbaceous Marsh Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
American Bittern
American White Pelican
Black Tern
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Clark's Grebe
Common Loon
Common Tern
Forster's Tern
Franklin's Gull
Great Blue Heron
Horned Grebe
Le Conte's Sparrow
Nelson's Sharp-tailed Sparrow
Peregrine Falcon
Trumpeter Swan
White-faced Ibis

Mammals
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Spotted Bat
Townsend's Big-eared Bat

Reptiles
Snapping Turtle
Western Hog-nosed Snake

Wet Meadow Associated SGCN

Amphibians
Northern Leopard Frog
Western Toad

Birds
American Bittern
Black Rosy-Finch
Black-crowned Night-Heron
Bobolink
Clark's Nutcracker
Ferruginous Hawk
Franklin's Gull
Gray-crowned Rosy-Finch
Great Blue Heron
Great Gray Owl
Green-tailed Towhee
Le Conte's Sparrow
Peregrine Falcon
Trumpeter Swan
White-faced Ibis

Mammals
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

ALPINE GRASSLAND AND SHRUBLAND & ALPINE SPARSE OR BARREN **441 miles^2**

Ecoregion: Canadian Rockies **0.3% landcover**

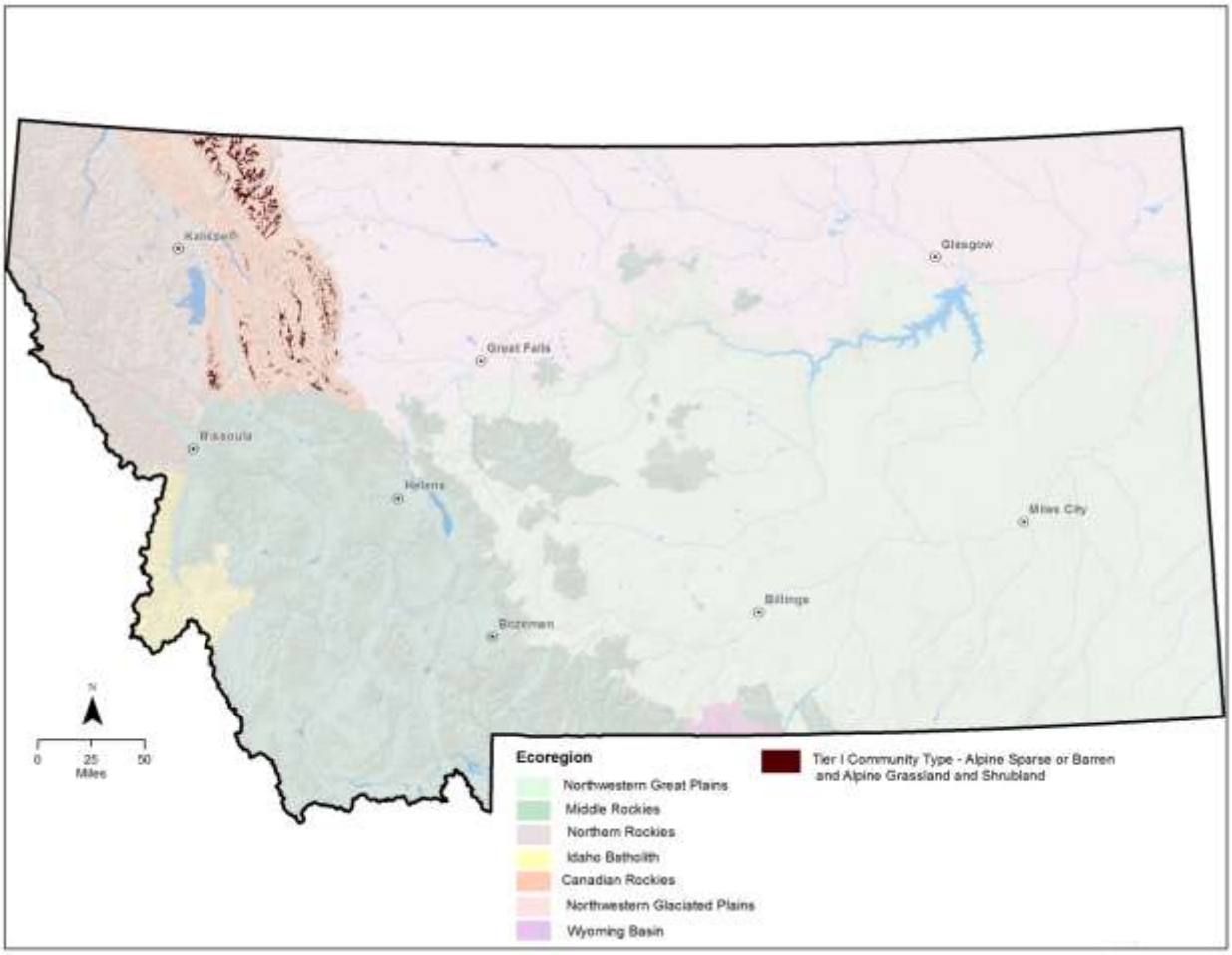

Figure 12. Distribution of Tier I Alpine Grassland and Shrubland & Alpine Sparse and Barren

The alpine community types are found at elevations above 6,600 feet in Montana. The vegetation cover is generally no more than 50%, and ranges in height from five inches (sedges, rushes, grasses, and forbs) to 1.6 feet (dwarf shrublands). At the highest elevations, above 7,500 feet, there is less vegetation, and ground cover varies from bedrock and scree to perennial ice. The entire area is characterized by a cold, short growing season with generally heavy snow accumulation except where the wind keeps it blown free.

This entire community is fragile and is easily impacted. Though it is slow to recover, the areas impacted by direct human contact are limited because of difficult accessibility. A bigger impact is the changing climate potentially resulting in less snow accumulation and earlier melting, although there are no strategies available through this SWAP to address this threat.

Associated SGCN

Birds
Black Rosy-Finch
Black Swift
Golden Eagle
Gray-crowned Rosy-Finch
Peregrine Falcon
White-tailed Ptarmigan

Mammals
Dwarf Shrew
Fisher
Grizzly Bear
Little Brown Myotis
Wolverine

CONIFER-DOMINATED FOREST AND WOODLAND (MESIC-WET) **3,827 miles^2**

Ecoregions: Idaho Batholith Northern Rockies **2.6% landcover**

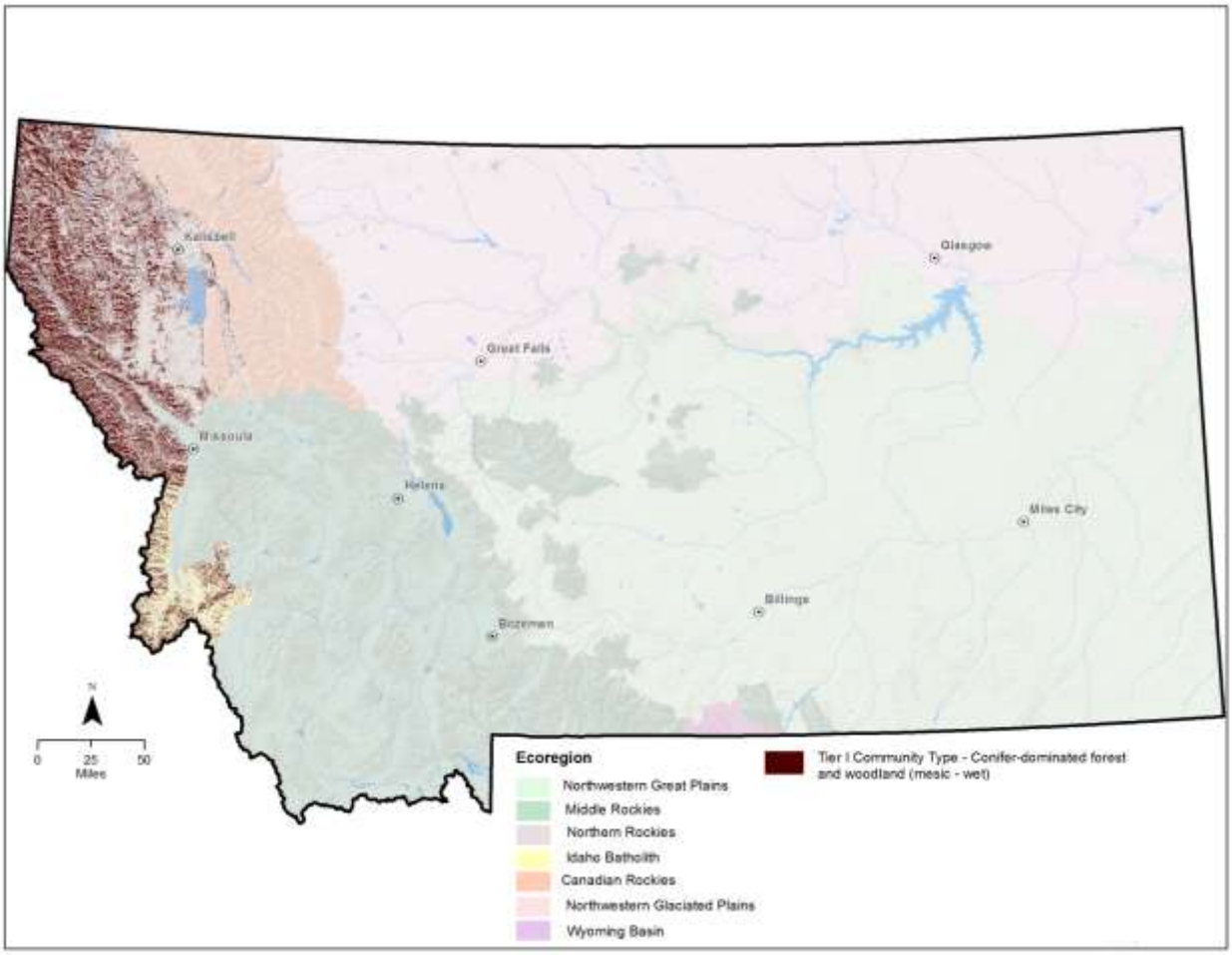

Figure 13. Distribution of Tier I Conifer-dominated Forest and Woodland (mesic-wet)

The mixed conifer forest dominated by western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and grand fir (*Abies grandis*) are found at elevations in Montana from 2,000-5,200 feet. The Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*) dominated forest is found from 2,900-8,800 feet.

In the past, this community type was a priority for timber production in northwestern Montana. Large, old stumps from past harvest activities provide evidence that large-bowled trees used to be much more abundant on the landscape than they are today.

Associated SGCN

Amphibians
Coeur d'Alene Salamander
Idaho Giant Salamander
Western Toad

Birds
Black-backed Woodpecker
Boreal Chickadee
Brown Creeper
Cassin's Finch
Clark's Nutcracker
Evening Grosbeak
Flammulated Owl
Great Gray Owl
Northern Goshawk
Northern Hawk Owl
Pileated Woodpecker
Varied Thrush

Mammals
Canada Lynx
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

Reptiles
Northern Alligator Lizard

CONIFER-DOMINATED FOREST AND WOODLAND (XERIC-MESIC) **26,257 miles^2**

Ecoregions: Canadian Rockies, Idaho Batholith, Middle Rockies, Northern Rockies, Northwestern Great Plains, Wyoming Basin **17.9% landcover**

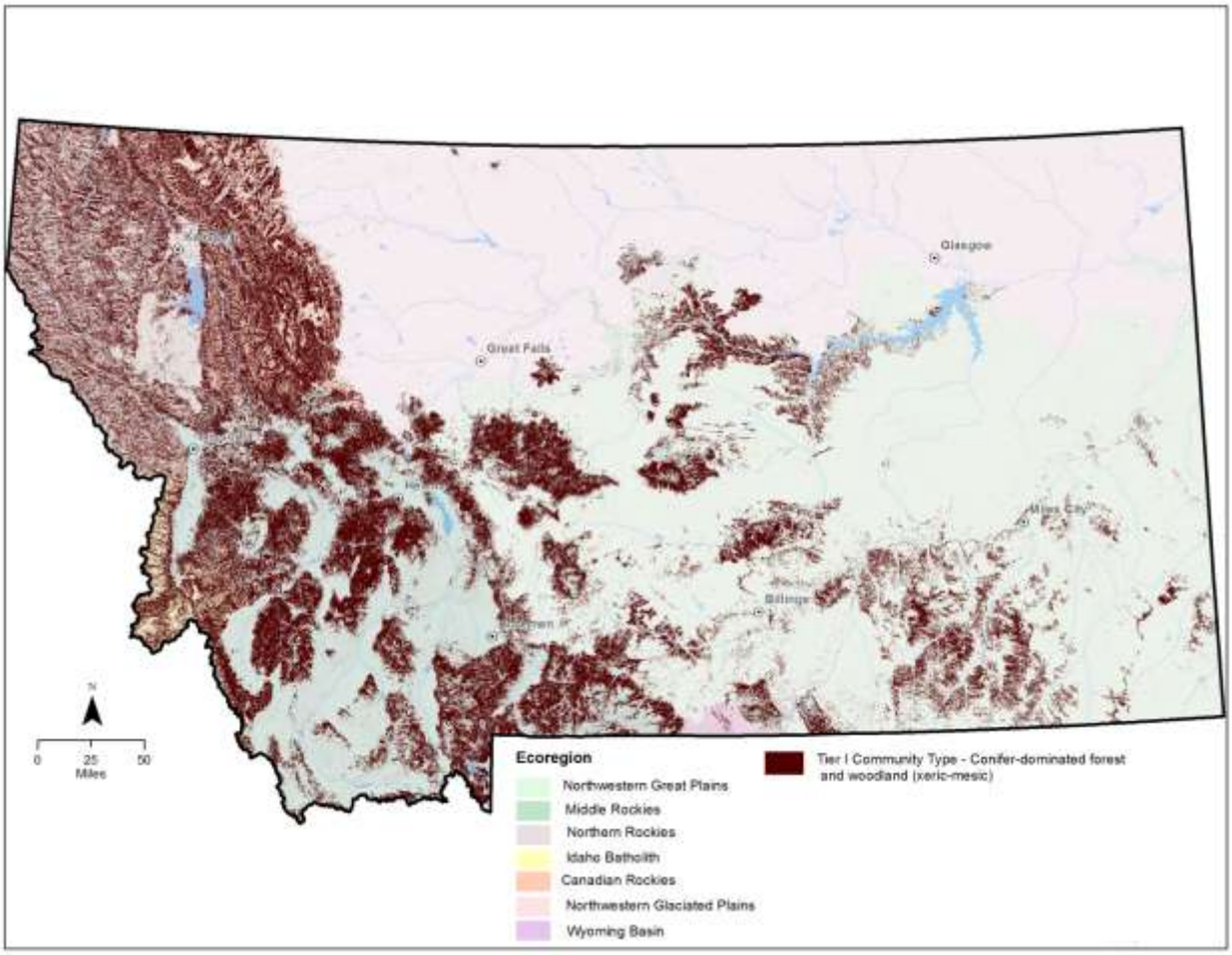

Figure 14. Distribution of Tier I Conifer-dominated Forest and Woodland (xeric-mesic)

This community type is found throughout Montana in elevations ranging from 2,900-9,500 feet. It is a dry tolerant community type that experiences long precipitation-free periods during the summer.

The dominant conifer species vary based on elevation and soil type and can be lodgepole pine (*Pinus contorta*); Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*); whitebark pine (*Pinus albicaulis*); ponderosa pine (*Pinus ponderosa*); Douglas-fir (*Pseudotsuga menziesii*); limber pine (*Pinus flexilis*), western larch (*Larix occidentalis*), western white pine (*Pinus monticola*), and rocky mountain juniper (*Juniperus scopulorum*).

According to the Department of Natural Resources and Conservation's (DNRC) forest assessment (DNRC 2010), the impacts of fire and insects are due to "an uncharacteristic increase in forest density within ponderosa pine and Douglas fir forests." In western Montana, Douglas fir

has replaced ponderosa pine in 25-40% of the area, and western white pine has been reduced by 95% due to disease introductions and the mountain pine beetle. Lack of fire or other ground disturbance has reduced western larch by 40% (DNRC 2010).

Fire and insects drive this community type more than any other factors. Prescribed fires can be used to maintain this community in the absence of natural fires.

Associated SGCN

Amphibians
Idaho Giant Salamander
Plains Spadefoot
Western Toad

Birds
Black-backed Woodpecker
Black-billed Cuckoo
Blue-gray Gnatcatcher
Boreal Chickadee
Brewer's Sparrow
Brown Creeper
Cassin's Finch
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Flammulated Owl
Golden Eagle
Great Gray Owl
Green-tailed Towhee
Lewis's Woodpecker
Loggerhead Shrike
Northern Goshawk
Northern Hawk Owl
Peregrine Falcon
Pileated Woodpecker
Pinyon Jay
Red-headed Woodpecker
Sharp-tailed Grouse
Varied Thrush
White-tailed Ptarmigan

Mammals
Bison
Canada Lynx
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Pygmy Shrew
Spotted Bat
Townsend's Big-eared Bat
Wolverine

Reptiles
Greater Short-horned Lizard
Milksnake
Northern Alligator Lizard
Western Hog-nosed Snake
Western Skink

DECIDUOUS DOMINATED FOREST AND WOODLAND **1,525 miles^2**

Ecoregions: Idaho Batholith Northwestern Glaciated Plains **1.0% landcover**
Middle Rockies Northwestern Great Plains

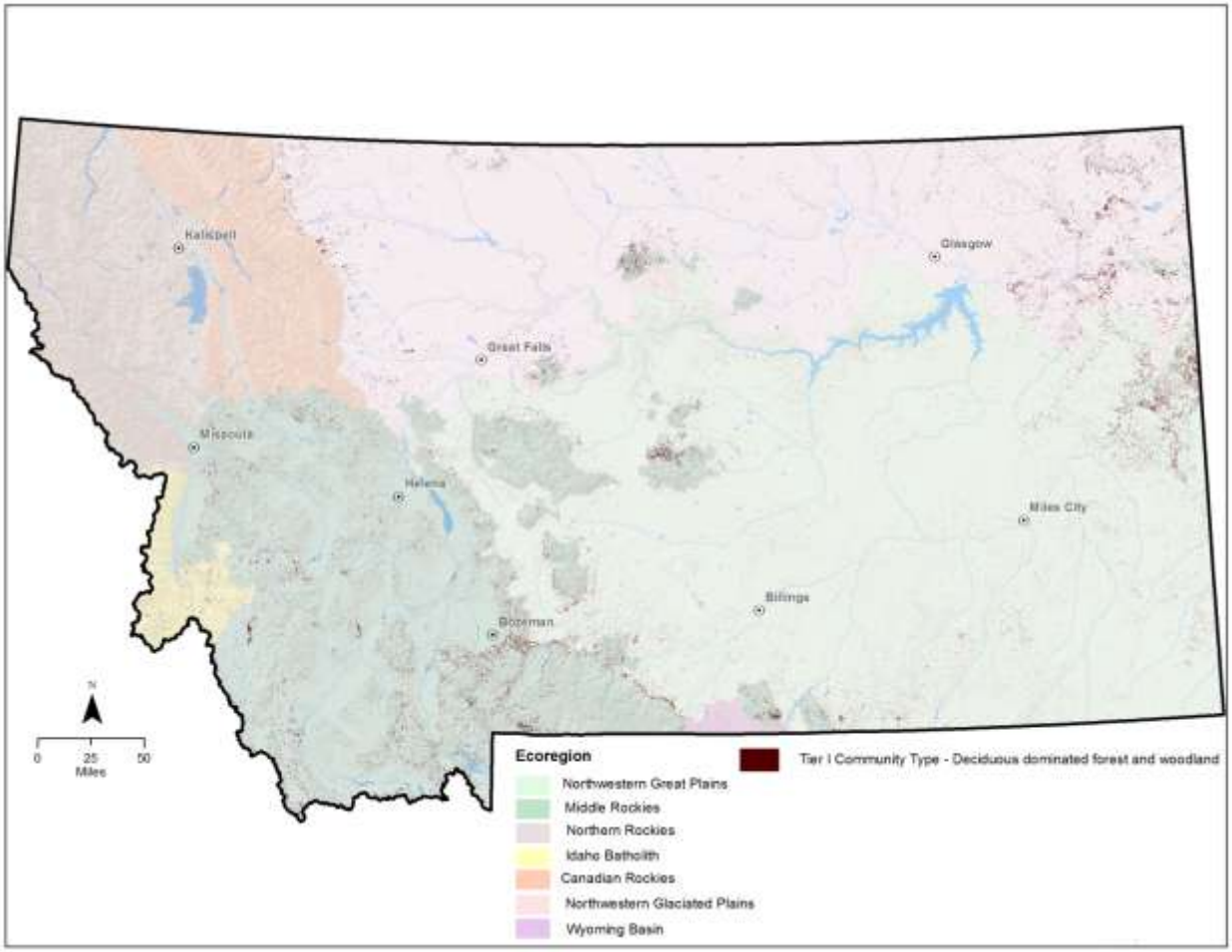

Figure 15. Distribution of Tier I Deciduous Dominated Forest and Woodland

This community type is associated with a relatively long growing season but has a cold winter with deep snow. It can be found in Montana at elevations between 3,500-9,000 feet.

The lower elevation woodlands, mostly found in the Northwestern Great Plains and Northwestern Glaciated Plains Ecoregions, are dominated by green ash (*Fraxinus pennsylvanicus*) and chokecherry (*Prunus virginiana*) and are associated with intermittent or ephemeral streams. These woody draws are very important to wildlife and domestic animals. However, this high use leads to trampling and ultimately conversion to shrubs. Alternate shade, water, and forage for cattle can help protect these draws for wildlife.

The mid and high elevation dominant species are curl-leaf mountain mahogany (*Cercocarpus ledifolius*) and quaking aspen (*Populus tremuloides*). Fire, grazing, and forestry practices have the greatest impact on this community type.

Associated SGCN

Amphibians
Plains Spadefoot
Western Toad

Birds
Alder Flycatcher
Black-billed Cuckoo
Cassin's Finch
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Golden Eagle
Great Gray Owl
Green-tailed Towhee
Loggerhead Shrike
Northern Hawk Owl
Pinyon Jay
Red-headed Woodpecker
Sage Thrasher
Sharp-tailed Grouse
Spotted Bat
Veery
Yellow-billed Cuckoo

Mammals
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Pygmy Shrew
Townsend's Big-eared Bat

Reptiles
Milksnake
Smooth Greensnake

DECIDUOUS SHRUBLAND **759 miles^2**

Ecoregions: Canadian Rockies Northern Rockies **0.5% landcover**
Idaho Batholith

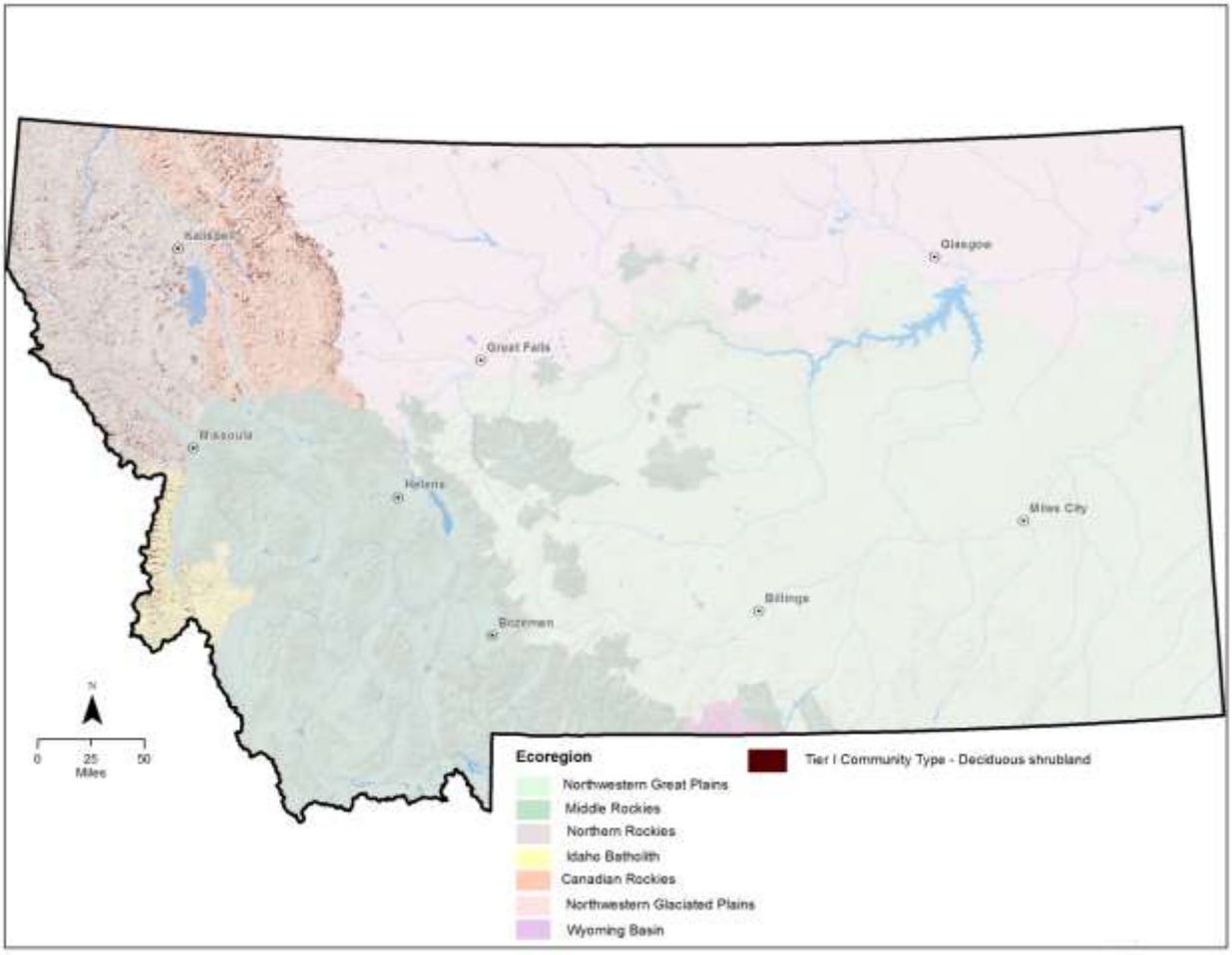

Figure 16. Distribution of Tier I Deciduous Shrubland

This community type is found throughout Montana at elevations ranging from 2,200-8,800 feet. Shrub cover is generally 30-100%. It occurs from foothills below treeline to high alpine areas. The most common dominant shrubs include ninebark (*Physocarpus malvaceus*), bittercherry (*Prunus emarginata*), common chokecherry (*Prunus virginiana*), rose (*Rosa* spp.), smooth sumac (*Rhus glabra*), Rocky Mountain maple (*Acer glabrum*), serviceberry (*Amelanchier alnifolia*), oceanspray (*Holodiscus discolor*), rusty leaf menziesia (*Menziesia ferruginea*), black twinberry (*Lonicera involucrata*), alder buckthorn (*Rhamnus alnifolia*), prickly currant (*Ribes lacustre*), thimbleberry (*Rubus parviflorus*), sitka alder (*Alnus viridis*), Cascade mountain ash (*Sorbus scopulina*), Sitka mountain ash (*Sorbus sitchensis*), and thinleaf huckleberry (*Vaccinium membranaceum*).

Fire and grazing typically drive this community type. In the absence of natural fire, prescribed burns can be used to maintain this system, though caution should be taken as some species are fire intolerant.

Associated SGCN

Amphibians
Western Toad

Birds
Baird's Sparrow
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Golden Eagle
Gray-crowned Rosy-Finch
Green-tailed Towhee
Loggerhead Shrike
Northern Hawk Owl
Sharp-tailed Grouse
Varied Thrush
White-tailed Ptarmigan

Mammals
Bison
Canada Lynx
Dwarf Shrew
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Preble's Shrew
Pygmy Shrew
Spotted Bat
Wolverine

Reptiles
Greater Short-horned Lizard
Northern Alligator Lizard
Western Skink

LOWLAND/PRAIRIE GRASSLAND **30,724 miles^2**

Ecoregions: Northwestern Glaciated Plains Wyoming Basin **20.9% landcover**
Northwestern Great Plains

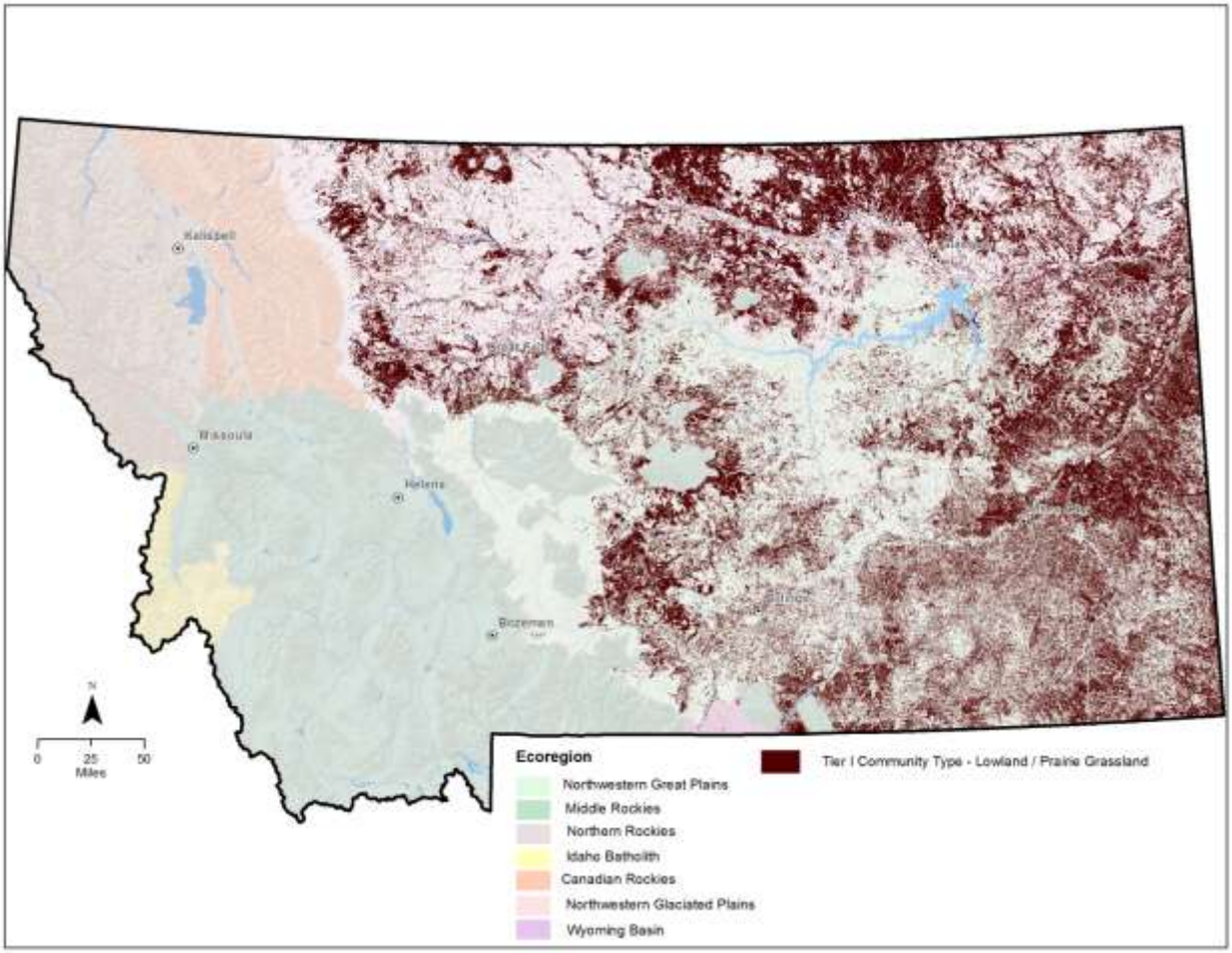

Figure 17. Distribution of Tier I Lowland/Prairie Grassland

This system covers much of the eastern two-thirds of Montana, occurring continuously for hundreds of square miles, interrupted only by wetland and riparian areas. Grasses typically comprise the greatest canopy cover and forb diversity is typically high. Wind erosion, fire, and grazing are major dynamic processes that can influence this system. Drought can also impact it, in general favoring the shortgrass component at the expense of the mid-height grasses. With intensive grazing, cool season exotics increase in dominance; rhizomatous species have been shown to markedly decrease species diversity. Previously cultivated acres that have been re-vegetated with non-native plants have been transformed into associations such as Kentucky bluegrass (*Poa pratensis*) and western wheatgrass *(Pascopyrum smithii)* or into pure crested wheatgrass (*Agropyron cristatum)* stands.

Historically, frequent indigenous anthropogenic fires and large numbers of migrating bison and other herbivores contributed to plant species and plant community diversity within this system. In the Northern Great Plains, pre-settlement fire frequency occurred at intervals ranging from

three to 20 years (Umbanhowar 1996). The elimination of bison, black-tailed prairie dogs, and frequent fire intervals disrupted plant community dynamics, leading to a decrease in plant community diversity. Typically, this community is tolerant of managed grazing practices, moderate-intensity fires, and fallowed wheat-cropping practices. Prolonged, extreme drought is a major threat to this system, reducing the density and cover of short grasses by as much as 80% and the bunchgrasses and native forbs to almost zero (Albertson 1937). During prolonged drought, native forbs are rapidly replaced by non-native invasive forbs. During the severe droughts of the 1930's and 1950's, basal area cover of grasses decreased from 80 to less than 10% under moderate grazing regimes in three to five years (Barbour 2000). In short, the dynamics of species changes in this system is a function of climate, but the magnitude of these changes is greatly influenced by the intensity of grazing and fire frequency. The distribution, species richness and productivity of plant species within this community are controlled primarily by environmental conditions, in particular the temporal and spatial distribution of soil moisture and topography. Another important aspect of this system is its susceptibility to wind erosion. Blowouts and sand draws can impact vegetation composition and succession within this system; fire and grazing constitute the other major disturbances. Overgrazing, fire, and trampling that leads to the removal of vegetation in areas susceptible to blowouts can either instigate a blowout or perpetuate blowouts occurring within the system.

Areas that have been disturbed by previous cultivation or overgrazing may support large numbers of invasive or non-native plant species. Control of these species can occur through managed grazing practices, chemicals, or biological mechanisms such as insects or fire. In the absence of fire and native grazers, regions of the mixed grass prairie may be susceptible to woody plant or cacti invasion. Controlled burning practices every four years can control plant expansion. Landowners looking to manage for wildlife may choose to burn less often than livestock managers, promoting availability of woody vegetation for wildlife species. Grazing should be managed to avoid instigation and perpetuation of blowouts and vegetation loss within this system. Prescribed fires can also be used to enhance, maintain, and restore this system.

Associated SGCN

Amphibians
Great Plains Toad
Plains Spadefoot

Birds
Baird's Sparrow
Bobolink
Burrowing Owl
Chestnut-collared Longspur
Ferruginous Hawk
Golden Eagle
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Mountain Plover
Sharp-tailed Grouse
Sprague's Pipit

Mammals
Black-tailed Prairie Dog
Dwarf Shrew
Fringed Myotis
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Spotted Bat
Swift Fox
Townsend's Big-eared Bat

Reptiles
Greater Short-horned Lizard
Milksnake
Western Hog-nosed Snake

MONTANE GRASSLAND **10,841 miles^2**

Ecoregions: Canadian Rockies, Idaho Batholith, Middle Rockies, Northern Rockies, Northwestern Glaciated Plains, Northwestern Great Plains **7.4% landcover**

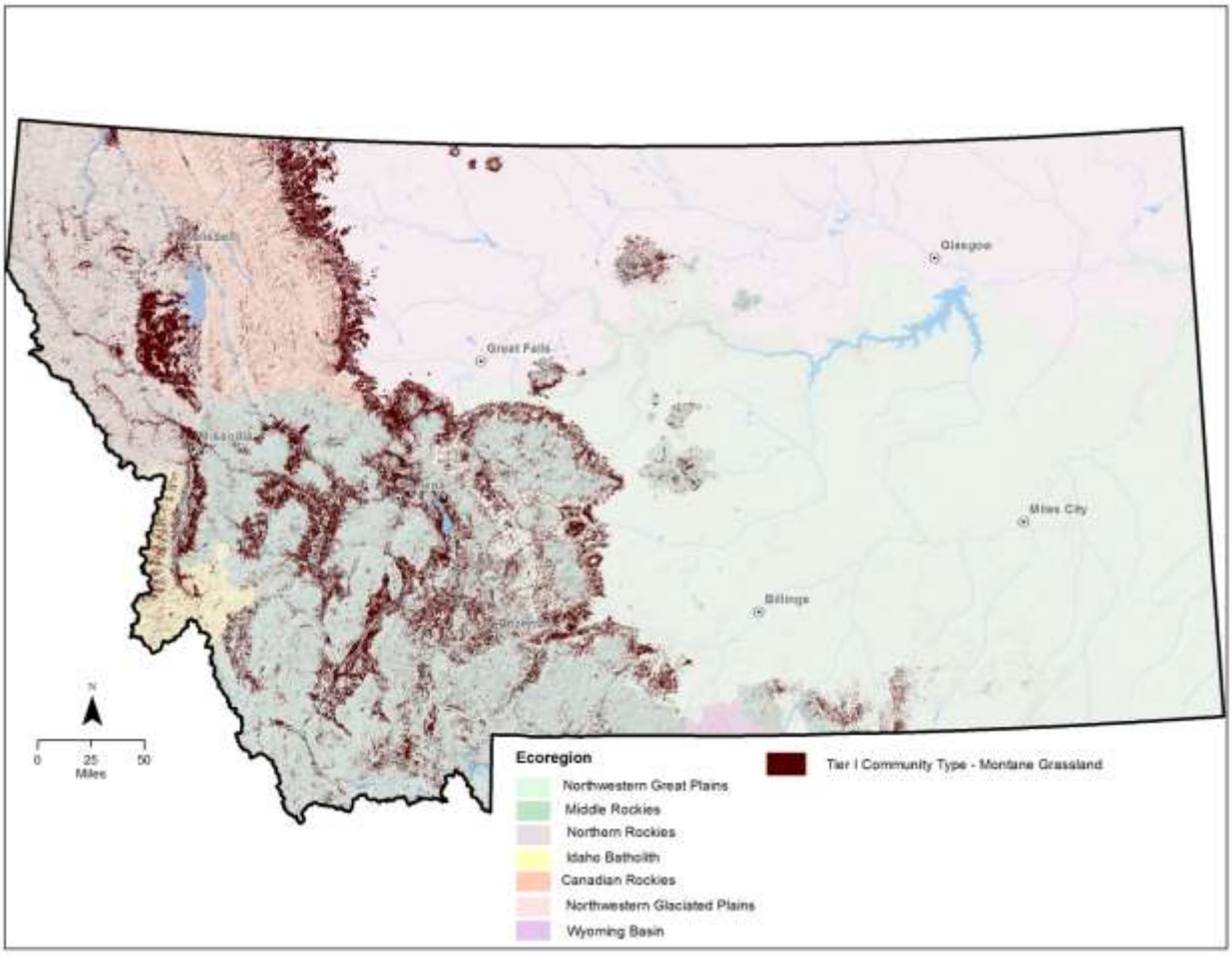

Figure 18. Distribution of Tier I Montane Grassland

This community type is found at elevations ranging from 1,800-8,800 feet in Montana. Below 5,400 feet, the grassland is generally dominated by rough fescue (*Festuca campestris*), Idaho fescue (*Festuca idahoensis*), or bluebunch wheatgrass (*Pseudoroegneria spicata*). Above this, the grasslands are dominated by a variety of grasses or forbs.

This system is susceptible to shrub encroachment and invasive weeds, especially if there is overgrazing and/or fire suppression. Prescribed burns and proper grazing management can help maintain this system.

Associated SGCN

Amphibians
Plains Spadefoot
Western Toad

Birds
Baird's Sparrow
Bobolink
Clark's Nutcracker
Ferruginous Hawk
Golden Eagle
Great Gray Owl
Green-tailed Towhee
Loggerhead Shrike
Long-billed Curlew
Northern Hawk Owl
Peregrine Falcon

Mammals
Bison
Dwarf Shrew
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Preble's Shrew
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

Reptiles
Greater Short-horned Lizard
Milksnake
Northern Alligator Lizard
Western Skink

SAGEBRUSH STEPPE & SAGEBRUSH-DOMINATED SHRUBLAND **24,789 miles^2**

Ecoregions: Middle Rockies Northwestern Great Plains **16.9% landcover**
Northwestern Glaciated Plains Wyoming Basin

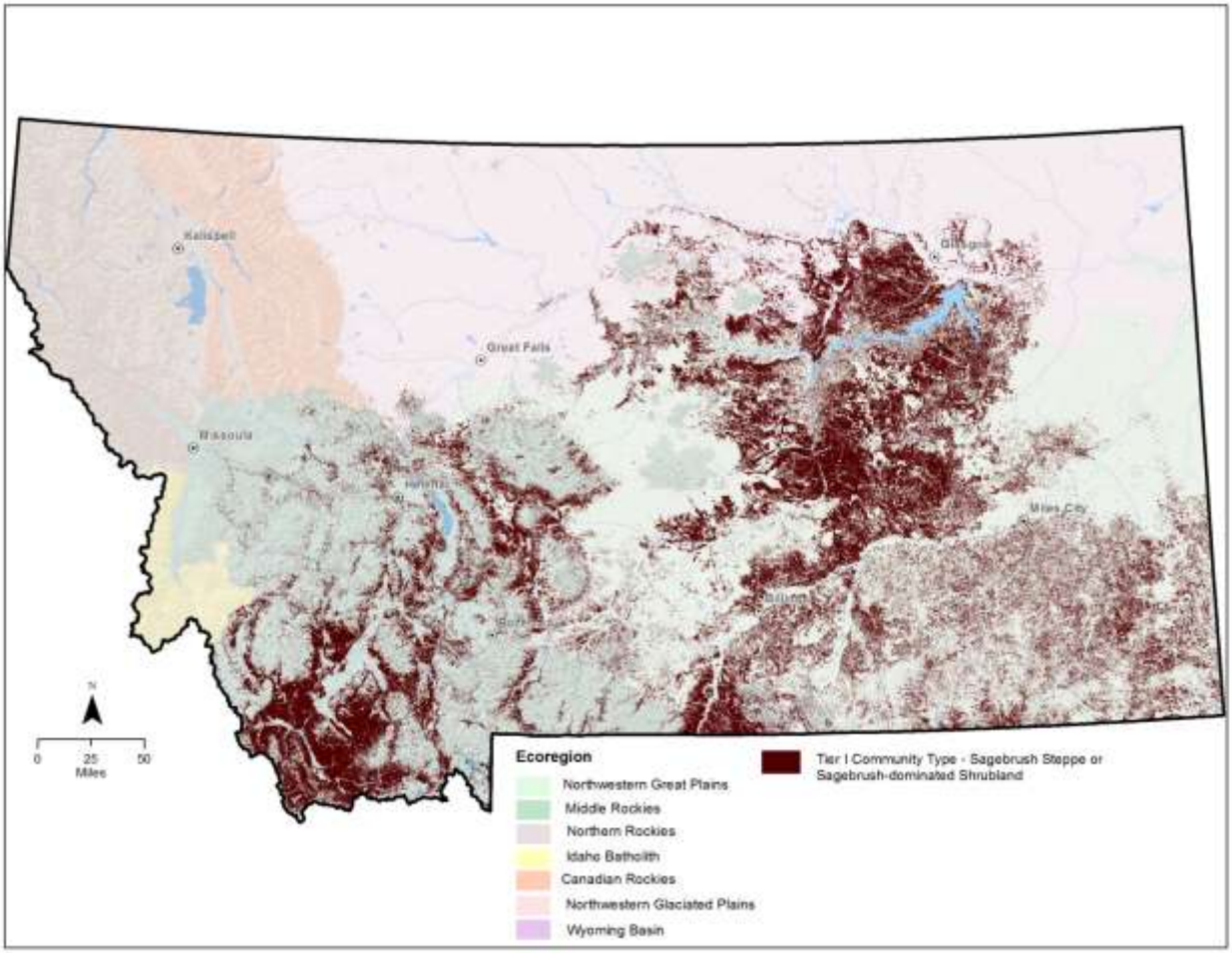

Figure 19. Distribution of Tier I Sagebrush Steppe & Sagebrush-dominated Shrubland

This community type is found is between 2,200-10,500 feet in Montana and is dominated by Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*), mountain big sagebrush (*A. t. ssp. vaseyana*), or black sage (*A. nova*). Shrub cover varies from 10-50%, and the cover of perennial grasses and forbs is generally over 25%.

In some areas, this steppe community is in a disclimax condition because of historic and current overgrazing. Proper grazing can be used to maintain the steppe character. As a general rule, fire is not a tool for maintaining sagebrush species because they are easily killed at all fire intensities and they only reproduce by seed. New research by Brady Allred (University of Montana) and Sam Fuhlendorf (Oklahoma State University) will be exploring this assumption. Cheatgrass invasion tends to be more likely in areas where perennial grasses and forbs are stressed or reduced; this can be tied to overgrazing. Fire also can be a catalyst for expanded cheatgrass invasion.

Associated SGCN

Amphibians
Great Plains Toad
Plains Spadefoot
Western Toad

Birds
Brewer's Sparrow
Burrowing Owl
Ferruginous Hawk
Golden Eagle
Greater Sage-Grouse
Green-tailed Towhee
Loggerhead Shrike
Mountain Plover
Sagebrush Sparrow
Sage Thrasher
Sharp-tailed Grouse

Mammals
Bison
Black-tailed Prairie Dog
Dwarf Shrew
Fringed Myotis
Great Basin Pocket Mouse
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Pygmy Rabbit
Spotted Bat
Townsend's Big-eared Bat
White-tailed Prairie Dog

Reptiles
Greater Short-horned Lizard
Milksnake
Western Hog-nosed Snake

SCRUB AND DWARF SHRUBLAND **26 miles^2**
Ecoregion: Wyoming Basin **0.02% landcover**

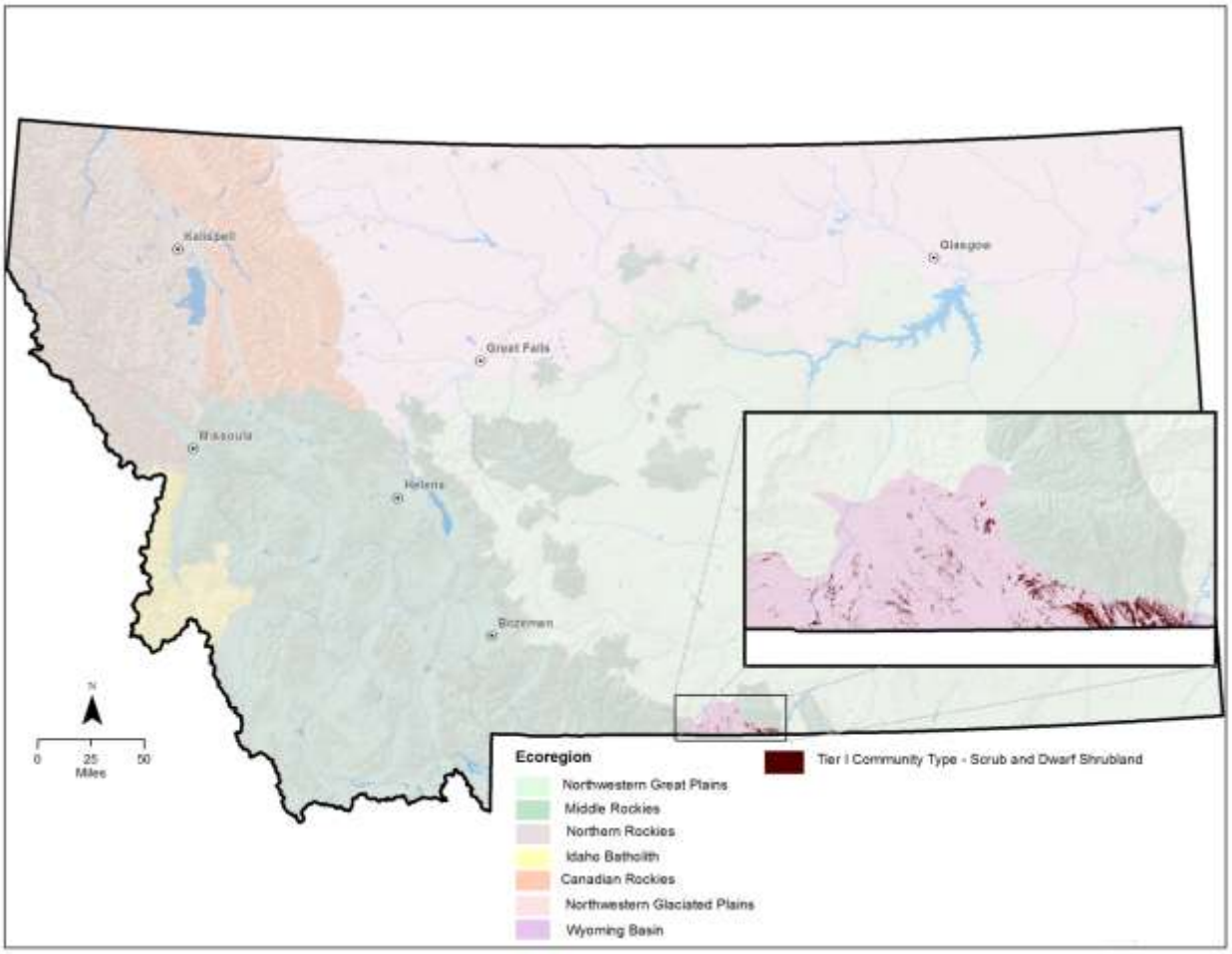

Figure 20. Distribution of Tier I Scrub and Dwarf Shrubland

This community type occurs on gentle slopes and rolling plains to the steep-facing badlands in south-central and south-eastern portions of the state. It is a shrub dominated community and forb cover is generally very low. This community type faces extreme climatic conditions, with warm to hot summers and freezing winters. The annual precipitation is generally 12 inches or less, and it normally occurs as spring rains and sometimes during late summer or fall.

Fire has been rare in this system due to the low plant cover. Excessive grazing, particularly by sheep, can significantly impact the cover of the principal shrub species, leading to an increase of cheatgrass and exotic annual forbs which results in the decline of the native perennial grasses in this system. Areas infested with cheatgrass cause the dynamics of this community type to change and increases the fire potential.

Associated SGCN

Amphibians
Plains Spadefoot

Birds
Brewer's Sparrow
Burrowing Owl
Chestnut-collared Longspur
Ferruginous Hawk
Golden Eagle
Greater Sage-Grouse
Loggerhead Shrike
Mountain Plover
Sagebrush Sparrow
Sharp-tailed Grouse

Mammals
Black-tailed Prairie Dog
Fringed Myotis
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Spotted Bat
Townsend's Big-eared Bat
White-tailed Prairie Dog

Reptiles
Greater Short-horned Lizard
Milksnake
Western Hog-nosed Snake

TERRESTRIAL COMMUNITY TYPE IMPACTS, THREATS, AND ACTIONS

Many of the terrestrial community types in Montana have similar threats, though the magnitude and urgency of those threats may be dissimilar. Likewise, the conservation actions addressing those threats may be different depending on the community type and the geographic area. Some threats can have far-reaching impacts across the entire state affecting all CTGCN and share the same mitigating actions. It is not implied, however, that the identified impacts and threats are *always* impacts and threats. They are only considered so if they negatively affect CTGCN or SGCN.

The following impacts, threats, and corresponding actions were identified by the technical teams, other experts, and/or were summarized from existing management plans or recovery plans. This list does not represent a brainstorming exercise where every action is listed. Rather, this list represents priority actions that have a better likelihood of mitigating and minimizing the associated impacts and threats. Therefore, the listed conservation actions may not represent all actions that should be implemented within a community type or Focal Area. The list of actions should be reviewed for each project to determine relevancy to the project goals, and other actions should be considered if they may benefit the Focal Area, CTGCN, and/or SGCN in question. In addition, not all listed actions are suitable for every community type or situation. Each area must be assessed separately to determine which actions are appropriate.

Broad actions that can address multiple threats and impacts are identified first, and grouped by AFWA's recommended categories to measure effectiveness (AFWA 2011). Actions addressing specific impacts and threats follow.

BROAD ACTIONS FOR TERRESTRIAL COMMUNITY TYPE IMPACTS AND THREATS

Collaboration and Outreach

- Incorporate BMPs when implementing actions outlined in this SWAP
- Actively participate with private landowners, watershed groups, NGOs, state and federal government agencies, local governments, tribes, land trusts, conservation districts, and other interested parties to: ensure work plans consider wildlife habitat needs during planning and implementation; ensure effective cooperation; work collaboratively; and to promote SGCN and habitat conservation while maintaining private land management objectives
- Encourage counties and communities to use FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a)
- Educate the public and land managers about the high values of CTGCN and how to better manage these habitats in ways that balance their management objectives with the conservation actions outlined in this SWAP
- Through press releases and participation in educational programs and public meetings, disseminate information regarding actions, issues, and science involving terrestrial community types to foster advocacy for and promote CTGCN and SGCN

Habitat Protection

- Continue to utilize Habitat Montana (FWP 1994) and other funding sources to support opportunities to conserve high priority CTGCN through fee title acquisitions and conservation easements
- Work with willing landowners, agencies, and organizations to purchase land or acquire conservation easements that support SGCN to: provide access to resources, prevent further habitat fragmentation, and preserve natural habitat function
- Work with partners to provide large, connected habitat patches across the state that are resilient and adaptable to existing impacts and future threats

Planning and Review

- Assist in the review of land use proposals completed by land management agencies that may affect CTGCN and provide recommendations to minimize impacts
- Work with other agencies, organizations, and interested parties to promote habitat conservation and management to benefit SGCN
- Consider SGCN and their habitats during development of management plans for WMAs, Fishing Access Sites, and State Parks

SPECIFIC IMPACTS AND THREATS TO TERRESTRIAL COMMUNITY TYPES

Habitat Fragmentation (all Terrestrial Community Types)

- Housing/subdivision development
- Loss of connectivity
- Highway corridors
- Train and vehicle traffic
- Development of inholdings
- Sale of large timberlands into smaller tracts
- Powerline/utility corridors
- Alteration of large tracts of habitat (e.g., sodbusting, energy development)
- Fences
- Increased road density and road upgrading
- Bridge construction and enlargement

Actions:

- Encourage counties and communities to use FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a)
- Review and comment on subdivision requests that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a)
- Review and comment on energy development projects that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (In prep) and *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep)
- Work with landowners and land management agencies to limit activities that may further fragment the landscape and negatively impact connectivity between CTGCN; investigate and promote landowner incentives to keep large blocks of land intact
- Encourage conservation projects that improve or provide connectivity between CTGCN

- Prioritize conservation easements and acquisitions adjacent to current conservation investments in order to create contiguous protected habitat that provides habitat linkages across large landscapes
- Provide wildlife overpasses, underpasses, and wildlife mitigation fencing along major transportation corridors where feasible
- Manage road density at or below current levels; new roads and utility corridors should be constructed to have minimal to no impact on CTGCN and associated SGCN
- Follow recommendations in the planning guide for protecting Montana's wetlands and riparian areas (Ellis and Richard 2008)

Pollution/contamination of Resources (all Terrestrial Community Types)

- Coal, oil, gas, Coal Bed Methane, and bentonite exploration and extraction
- Mine contamination
- Urban runoff
- Superfund sites
- New hard rock mines

Actions:

- Review and comment on energy development projects that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (In prep)
- Offer technical assistance to other agencies engaged in remediation of abandoned mines to ensure cleanup protects fish and wildlife health
- Work with landowners and land management agencies to limit impacts of hard rock mining on CTGCN and SGCN
- Work with lead agencies to ensure impacts to fish and wildlife are identified at superfund sites
- Work with watershed groups to clean up nonpoint pollution that is negatively impacting SGCN

Land Management (all Terrestrial Community Types)

- Incompatible grazing practices
- Altered fire regime
- Conflicting management policies
- Wetland draining
- Loss of native vegetation (e.g., cottonwood, green ash, willow) and low regeneration
- Inefficient agricultural practices (e.g., dewatering, irrigation impacts, riparian buffer encroachment)
- Loss of riparian habitat via bank stabilization
- Peat mining

Actions:

- Work with landowners and land management agencies to implement BMPs for SGCN and to limit or modify incompatible activities that may be detrimental to CTGCN and associated SGCN
- Educate the public and land managers about the high values of components of CTGCN (e.g., snags, large "legacy" trees, burned forest) to SGCN and how to better manage these habitats

- Promote recruitment of aspen and cottonwood stands by building exclosures to protect young trees from overbrowsing
- Work with landowners and land management agencies to develop a sustainable grazing systems that will minimize impacts to CTGCN and SGCN and allow for regeneration of native vegetation
- Manage for a range of grazing intensity across a landscape to provide for a range of SGCN needs (e.g., intensive grazing for mountain plovers and less grazing for sharp-tailed grouse)
- Provide comments in regards to CTGCN and SGCN to the Bureau of Land Management (BLM) on Resource Management Plans (RMP), grazing allotments plans, and other habitat related management plans
- Manage road density at or below current levels; new roads should be constructed to have minimal to no impact on CTGCN and associated SGCN
- Encourage restoration of natural fire regime to CTGCN where appropriate or implement other management actions that mimic the ecological processes provided by fire
- Reestablish native vegetation where opportunities exist and work to control non-native, invasive species such as Russian olive in riparian areas; discourage the use of invasive species in shelterbelts that may spread seed to threaten native riparian communities
- Follow habitat manipulation guidelines set out in existing management plans, such as the *Greater Sage-Grouse Habitat Conservation Strategy* (Montana's Greater Sage-grouse Habitat Conservation Advisory Council 2014) when finalized
- Provide for a range of habitat age classes to sustain preferred habitats and a variety of SGCN over time
- Encourage and support habitat improvement projects and projects to restore degraded habitat within CTGCN
- Encourage and restore natural processes and flow regimes in regulated river systems, without causing agricultural or other private land impacts, to help sustain riparian communities and floodplain function
- Use vegetative restoration and other "soft" measures for controlling stream bank erosion
- Promote and implement water conservation measures in agricultural areas to minimize impacts of withdrawals on surface water habitats
- Avoid peat mining or other vegetation manipulation in wetlands
- Complete better mapping of Montana wetlands through completion of the National Wetland Inventory and associated ground-truthing; complete inventory of rare biota that are often associated with these habitats
- Follow recommendations in *A Strategic Framework for Wetland and Riparian Area Conservation and Restoration in Montana 2013–2017* (Montana Wetland Council 2013) which includes the overarching wetland goal of no overall net loss of the state's remaining wetland resource base (as of 1989) and an overall increase in the quality and quantity of wetlands in Montana

Wind Energy (all Terrestrial Community Types)

- Habitat fragmentation
- Direct mortality of species

Actions:

- Review and comment on energy development projects that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep)

Recreation (all Terrestrial Community Types)

- Motorized use
- Ski area expansion
- Illegal watercraft use
- Illegal Off-road Vehicle (ORV) use

Actions:

- Consider seasonal and temporal recreational closures of important SGCN breeding areas to minimize disturbance during sensitive time periods such as nesting and brood rearing
- Maintain public access roadways into public land to help keep the public on those roads and prevent damage from illegal ORV use
- Increase education and outreach to ORV community to help minimize impacts on SGCN
- Increase education and outreach to watercraft users to help minimize impacts on SGCN
- Educate and collaborate with NGOs, volunteers, and the public to minimize impacts of recreation on SGCN and CTGCN
- Work with land management agencies to ensure SGCN impacts are fully considered during recreational development on public lands
- Reroute or remove and reclaim roads and trails that are causing resource damage to wetlands and other CTGCN

Climate Change (all Terrestrial Community Types)

- Habitat alteration (e.g., temperature and precipitation changes)

Actions:

- Continue to evaluate current climate science models and recommended actions
- Collect baseline data in order to document shifting range limits (latitude and elevation) of SGCN and CTGCN

Land Use Change (Floodplain & Riparian, Lowland Prairie/Grassland, Montane Grassland, Sagebrush Steppe & Sagebrush-Dominated Shrubland, Scrub and Dwarf Shrubland)

- Conversion of native habitat to cropland agriculture
- Removal of a keystone species
- Loss of acres enrolled in the Conservation Reserve Program (CRP)

Actions:

- Work on Farm Bill policy to promote wildlife friendly provisions and to ensure Farm Bill programs consider important wildlife priorities and do not provide incentive for conversion of native grasslands

- Work with landowners and DNRC to promote CRP or CRP-like programs to minimize additional conversions to cultivation agriculture
- Promote policies that support the maintenance of native plant communities in both state and federal programs
- Establish or encourage habitat improvement projects to benefit SGCN
- Restore or rehabilitate degraded and/or disturbed sites back to a to a healthy native plant community
- Follow habitat manipulation guidelines set out in the *Greater Sage-Grouse Habitat Conservation Strategy* (Montana's Greater Sage-grouse Habitat Conservation Advisory Council 2014) when finalized
- Work with landowners and land management agencies to develop a plan for minimal control of prairie dogs and ground squirrels and/or use non-toxic methods of control to maintain healthy populations of prairie dogs and ground squirrels in priority areas
- Use oral plague vaccine, if proven effective, on prairie dog towns to maintain them on the landscape

Invasive Species (all Terrestrial Community Types except Alpine Grassland and Shrubland & Alpine Sparse or Barren)

- Aquatic Nuisance Species
- Noxious weeds
- Disease outbreaks
- Insect infestations
- Conifer encroachment

Actions:

- To avoid spread of ANS, follow guidance in *Montana's Aquatic Nuisance Species Management Plan* (Montana ANS Technical Committee 2002) and updates or revisions to the plan
- Implement and promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004), whirling disease, and other waterborne diseases during research, monitoring, management, or recreational activities
- Expand educational efforts to help prevent the spread of invasive animal species
- Remove and/or restrict the spread and distribution of invasive animals that harm desired CTGCN and SGCN
- Work collaboratively with landowners, land management agencies, NGOs, interested parties, and county weed supervisors to develop landscape level approaches to weed management
- Implement invasive plant species control; mechanical, biological, and chemical tools (site specific) should be selected to control invasive plant species
- Remove detrimental exotic species such as Russian olive, salt cedar, Norway maple, and other exotic plants from shelterbelts associated with riparian areas, wetlands, and woody draws
- After wildland fires, monitor sites for noxious weeds and control as needed
- Reseed cheatgrass dominated land with native grasses and forbs
- Support research efforts on selective control for cheatgrass
- When appropriate, control conifer invasion where excessive encroachment threatens CTGCN (e.g., aspen stands, grasslands)

REGIONAL FOCAL AREAS

A total of 93 Tier I aquatic Focal Areas and 55 Tier I terrestrial Focal Areas were identified. The top 13 aquatic and top 14 terrestrial (Figure 21) are discussed in detail in separate sections in the following pages.

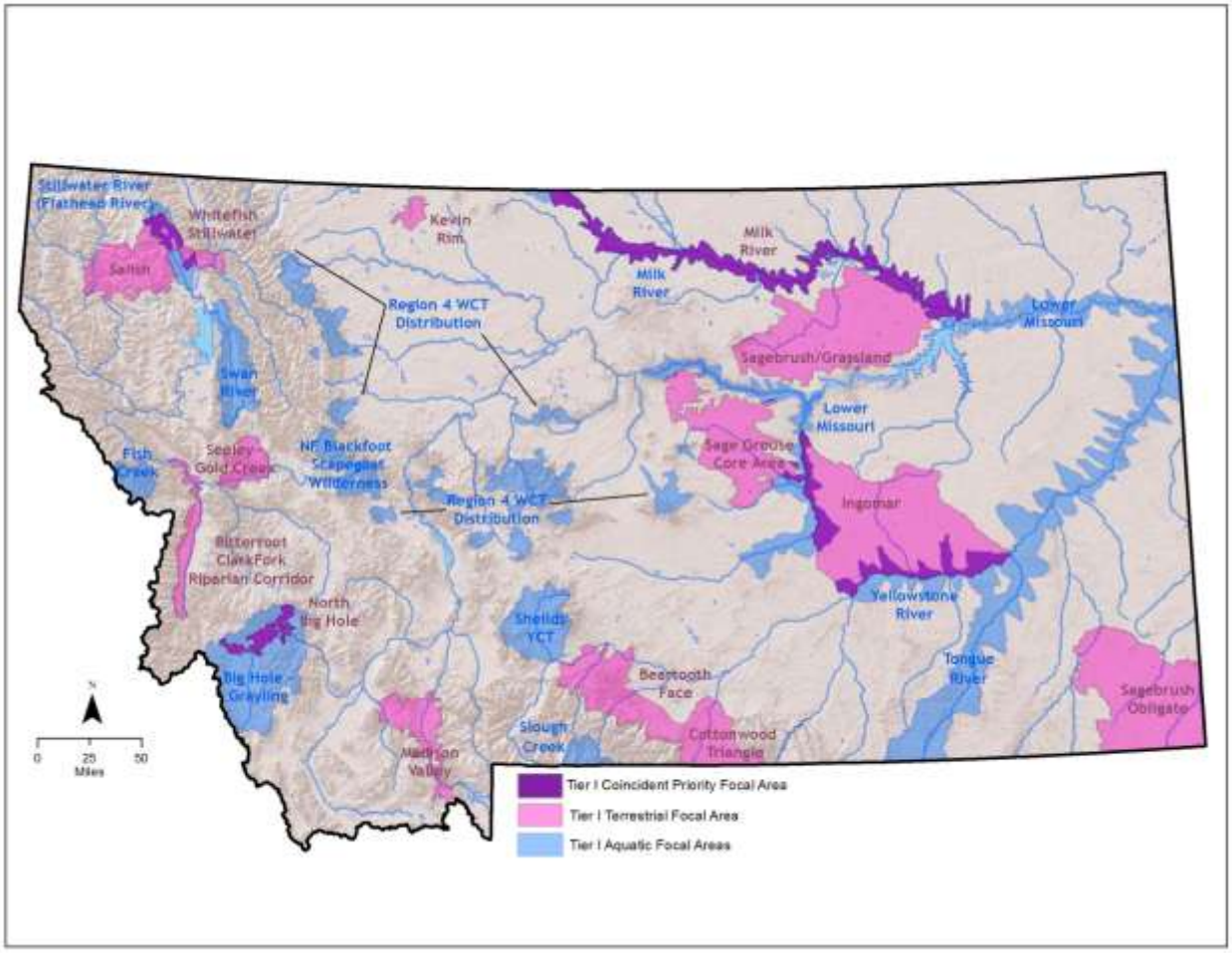

Figure 21. Top Tier I aquatic and terrestrial Focal Areas

AQUATIC REGIONAL FOCAL AREAS

A total of 93 Tier I and 164 Tier II aquatic Focal Areas were identified. These ranged in size from a small mountain stream to the entire length of a major river. The larger Focal Areas were generally found in eastern Montana, where many SGCN were found in the same water body. The approach to identify aquatic Focal Areas in western Montana was different, as multiple SGCN ranges generally did not overlap. Many western Focal Areas were identified using a single species approach instead of the multi-species approach in the east. Therefore, large, single-system Focal Areas were identified in the east, and smaller Focal Areas in the west.

FWP staff further refined the Tier I Focal Areas by ranking them and identifying the top two within each FWP region. Regions 4 and 5 combined one Focal Area, resulting in a total of 13 aquatic Focal Areas being represented in this section (Figure 22). The remaining Tier I and Tier II Focal Areas can be found in Appendices J-K. Examples of conservation actions that may be implemented in these Focal Areas can be found under the associated CTGCN and SGCN specific pages. The listed conservation actions, while thorough, may not represent all actions that should be implemented within each Focal Area. Listed actions should be reviewed prior to a project being implemented to determine relevancy to the project goals. Additional actions should be explored and implemented if they benefit the Focal Area, CTGCN, and/or SGCN.

While these areas were identified to focus conservation efforts, it is not implied that efforts only be restricted to these 13 areas. Implementing conservation actions in any Tier I or Tier II Focal Area has tremendous conservation value for Montana.

Figure 22. Top 13 Aquatic Focal Areas

SWAN RIVER **704 miles^2**

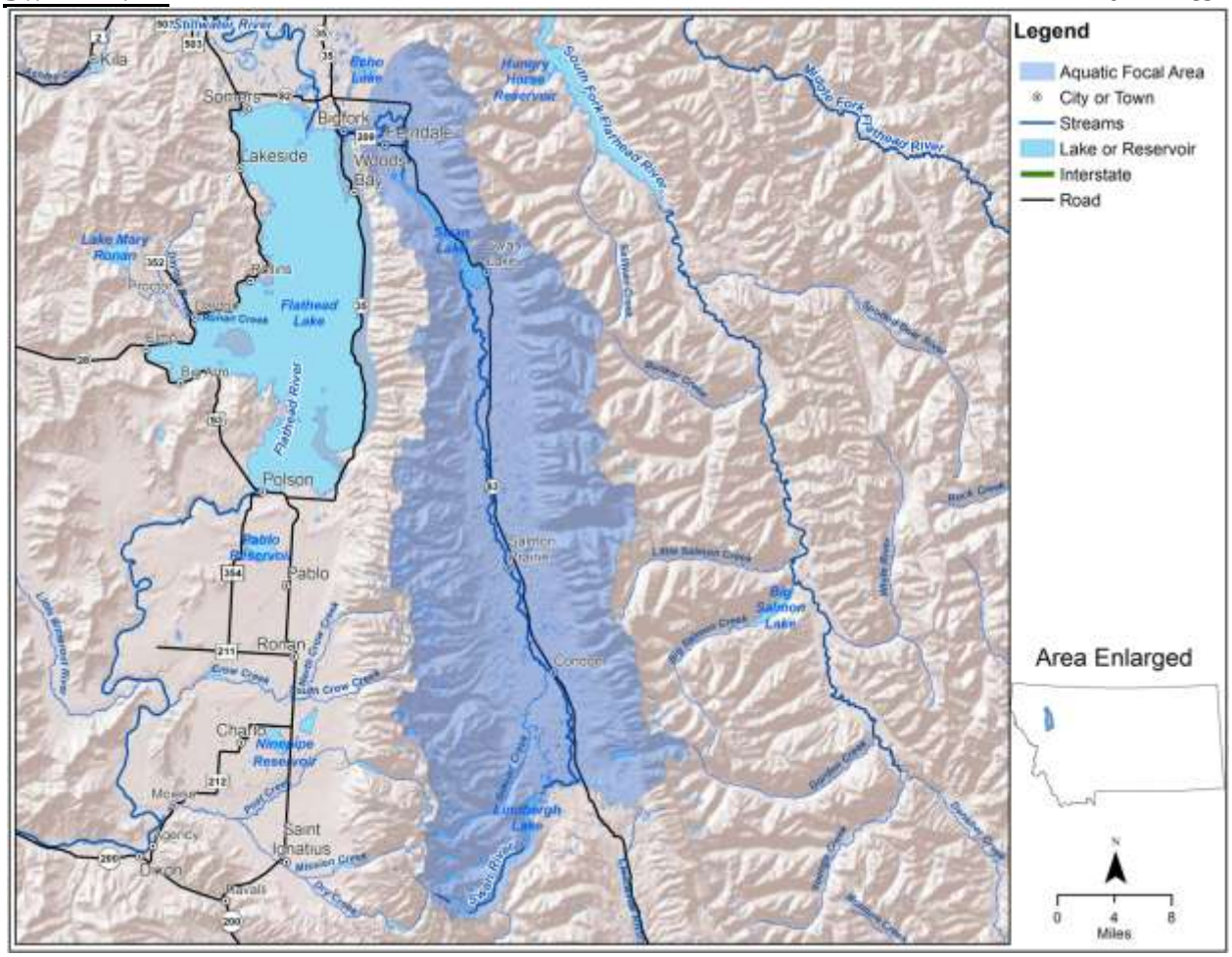

Figure 23. Swan River Focal Area in FWP Region 1 (Kalispell)

The Swan River Focal Area is unique in the western part of Montana, in that it supports several SGCNs in one system. There are several agencies and organizations working together in this Focal Area, including, FWP, DNRC, USFS, USFWS, The Nature Conservancy, Trust for Public Land, Confederated Salish and Kootenai Tribes, Montana State University, U.S. Geological Survey, and Trout Unlimited. In addition, there are existing protections including conservation easements. There is moderate recreational value in the area, including angling for rainbow and WCT in the Swan River and catch and release for bull trout in Swan Lake. Popular fisheries for kokanee salmon and northern pike also exist in Swan Lake.

Current impacts include road and subdivision development, incompatible timber harvest practices, and non-native species (i.e., lake trout, brook trout, northern pike) in Swan Lake. Future threats are the same.

Associated CTGCN
Intermountain Valley River
Mountain Stream

Associated SGCN
Bull Trout
Pygmy Whitefish
Westslope Cutthroat Trout

STILLWATER RIVER (FLATHEAD RIVER) **338 miles^2**

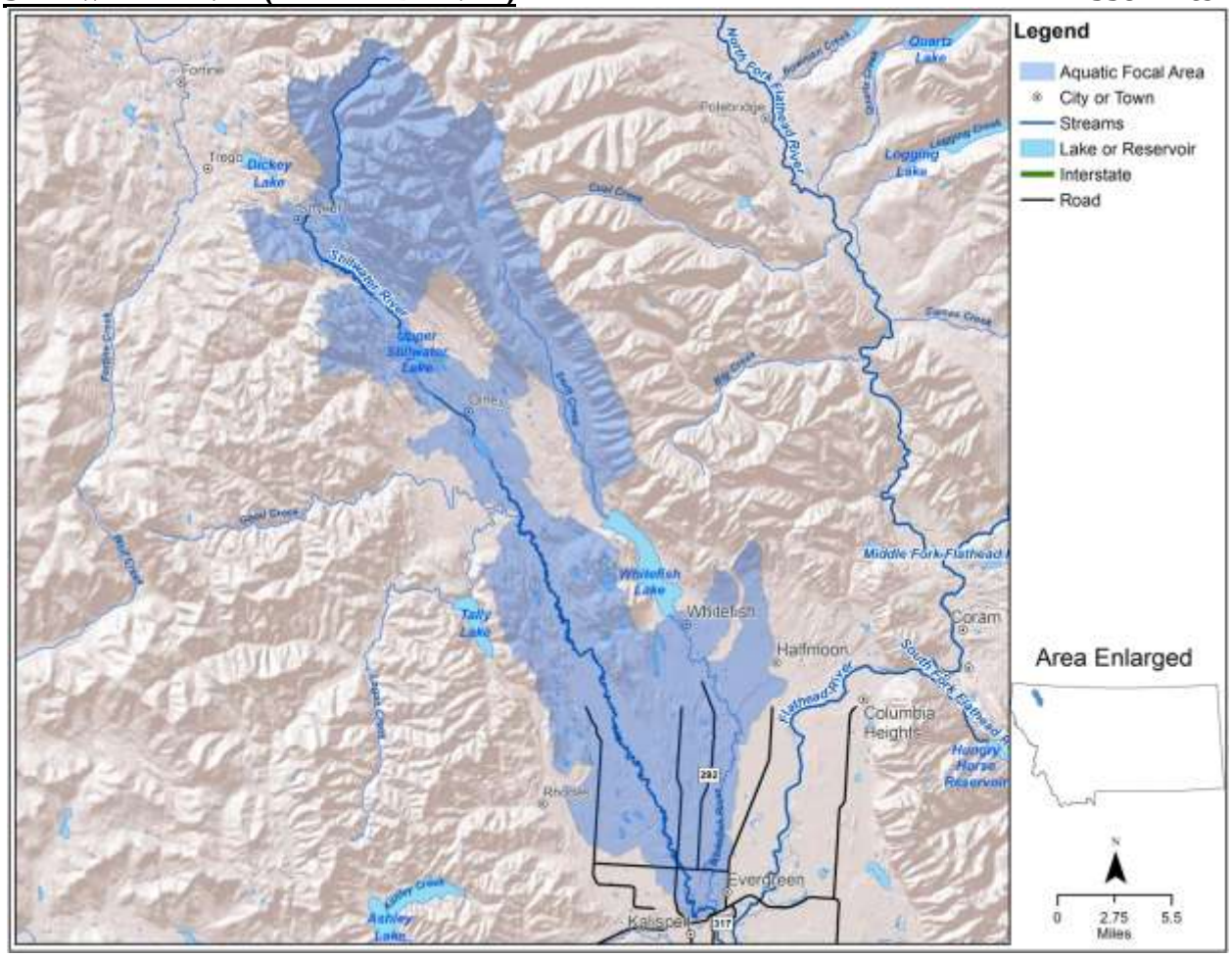

Figure 24. Stillwater River Focal Area in FWP Region 1 (Kalispell)

DNRC, USFS, and FWP have existing successful partnerships in this Focal Area. There are opportunities to improve connectivity with culvert and road improvements. There is moderate recreational value in the area, including fishing for native WCT as well as non-native salmonids. Lakes in the Stillwater drainage also provide diverse angling opportunities for non-native fishes.

Current impacts include road development, incompatible timber harvest practices, and competition from non-native species (i.e., lake trout, brook trout). Future threats will remain the same if action is not taken.

Associated CTGCN
Intermountain Valley River
Mountain Stream

Associated SGCN
Bull Trout
Westslope Cutthroat Trout

FISH CREEK **260 miles^2**

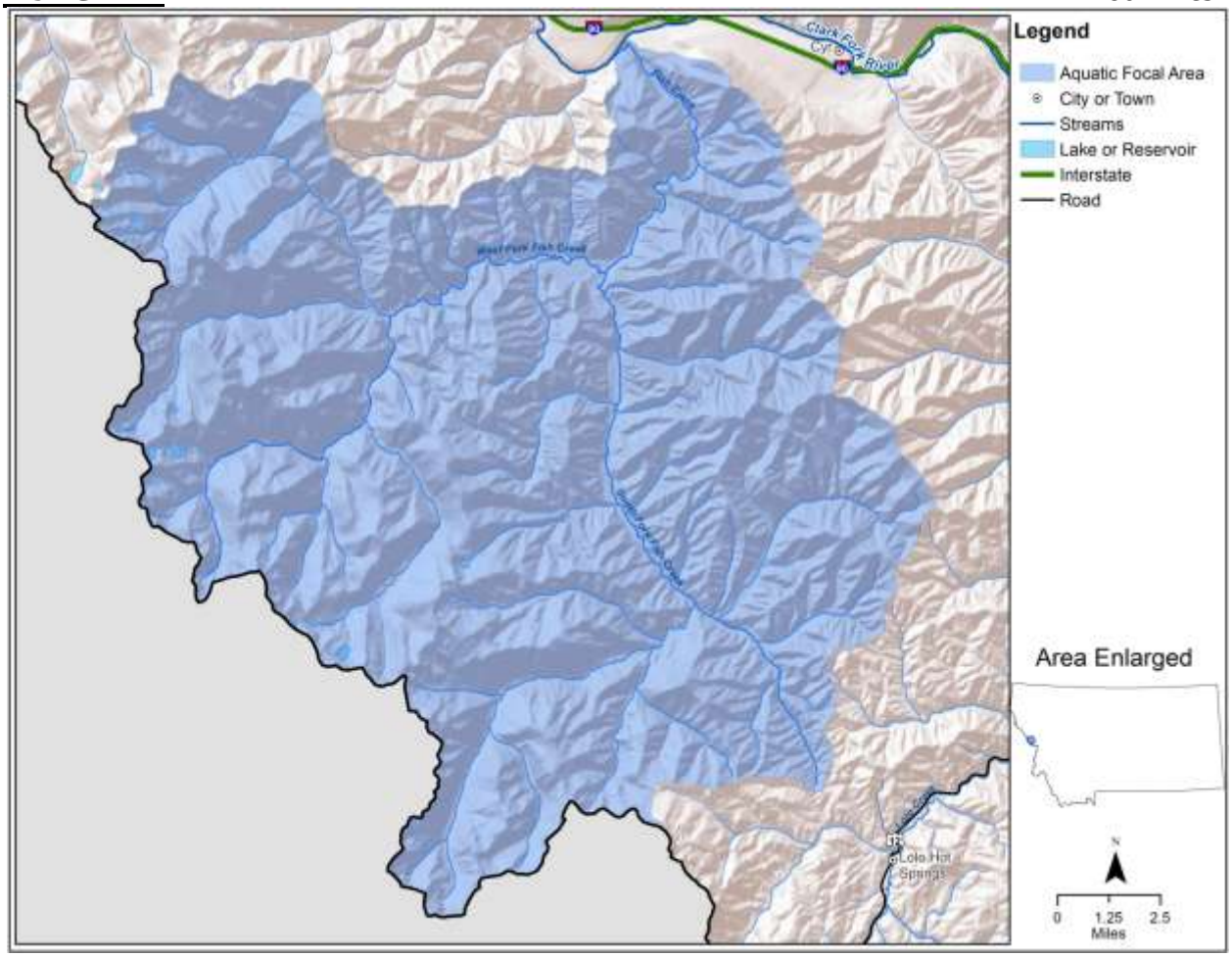

Figure 25. Fish Creek Focal Area in FWP Region 2 (Missoula)

Bull trout and WCT are found throughout this Focal Area and both have high conservation value. This area includes spawning and rearing areas and is an important recruitment source for the Clark Fork River. Current projects include partnerships between FWP, USFS, DNRC, Trout Unlimited, and others. Most of the upper watershed is within a proposed wilderness area and many stream crossings have been improved for fish passage. There are large roadless tracts and many roads have been decommissioned. Lower portions of the drainage have recently been purchased by FWP and now make up the Fish Creek WMA and State Park. Several key undeveloped, private in-holdings within this area are a priority for acquisition and protection. There is more opportunity for additional road decommissioning, fish passage improvements, and riparian and upland restoration. This is a high quality native trout fishery on the lower mainstem.

Current impacts include road and timber harvest impacts, riparian encroachment, competition and hybridization with non-native fish, and fish passage barriers. Future threats include riparian encroachment, large increases in fishing pressure, expansion by non-native fish, and impacts from further development.

Associated CTGCN
Intermountain Valley River
Mountain Stream

Associated SGCN
Bull Trout
Westslope Cutthroat Trout

NORTH FORK BLACKFOOT (SCAPEGOAT WILDERNESS) **323 miles^2**

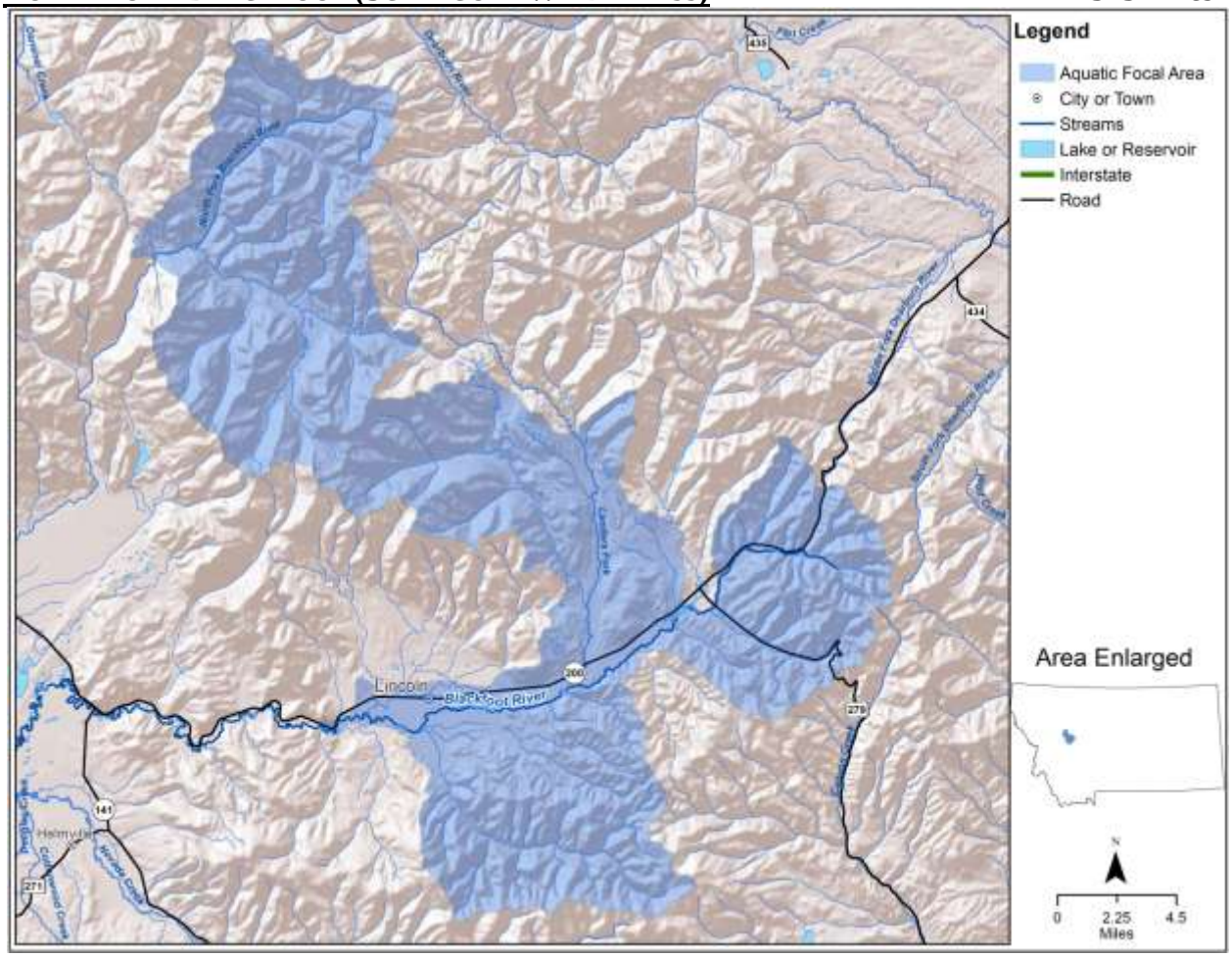

Figure 26. North Fork Blackfoot (Scapegoat Wilderness) Focal Area in FWP Region 2 (Missoula)

Bull trout and WCT are found within this Focal Area and both have high conservation value. The lower North Fork supports the largest fluvial bull trout run in Montana. The majority of the drainage is within designated Wilderness and provides recruitment for the Blackfoot River. Some areas already support pure WCT and investigations have begun regarding replacing hybrid rainbow trout with pure WCT and possibly introducing bull trout into upper portions of the watershed. This area supports excellent mountain lake fisheries and the possibility of enhanced WCT fishery in a restored stream system.

The primary impact to this Focal Area is the introduction of non-native rainbow trout. Future threats are minimal as nearly all of the area falls within a designated Wilderness Area.

Associated CTGCN
Intermountain Valley River
Mountain Stream

Associated SGCN
Bull Trout
Westslope Cutthroat Trout

BIG HOLE - GRAYLING **1,933 miles^2**

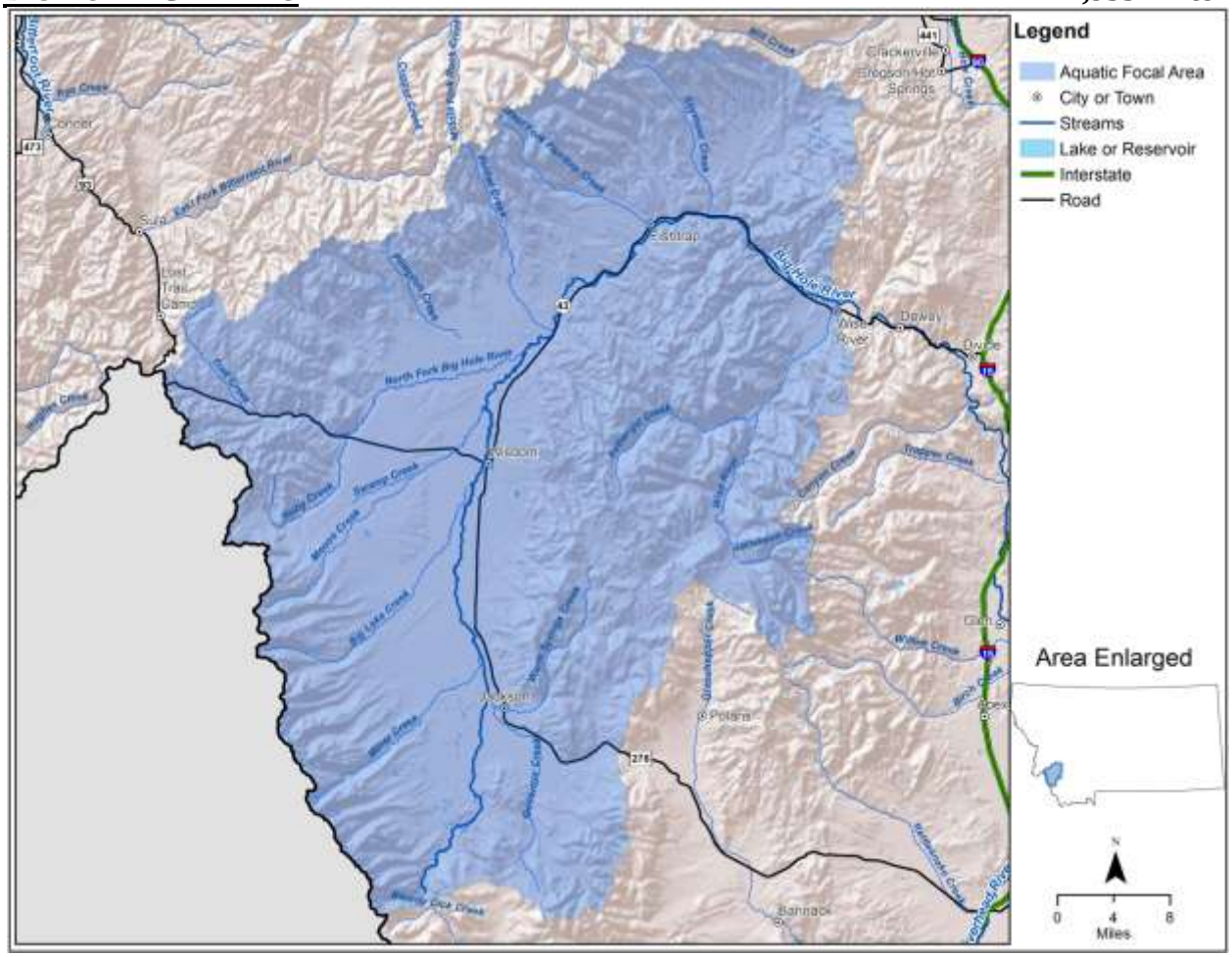

Figure 27. Big Hole – Grayling Focal Area in FWP Region 3 (Bozeman)

This area is core habitat for Arctic grayling and is a demonstration area with a successful Candidate Conservation Agreement with Assurances (CCAA). Successful partnerships with organizations and landowners have been occurring for over 20 years and have demonstrated how groups can come together to conserve water and restore riparian habitat. The ongoing CCAA will continue to work towards riparian habitat restoration and improving flows. This Focal Area is protected by a designated Wilderness Area in the headwaters and by the CCAA on private lands. There is some recreational use in this Focal Area.

Current impacts include habitat alteration, dewatering, and barriers to fish passage. Future threats include continued habitat alteration and dewatering, persistence of fish barriers, and climate change impacts on temperature and precipitation timing and amount.

Associated CTGCN
Intermountain Valley River
Mountain Stream

Associated SGCN

Arctic Grayling
Lake Trout
Western Pearlshell
Westslope Cutthroat Trout

SHIELDS YCT **854 miles^2**

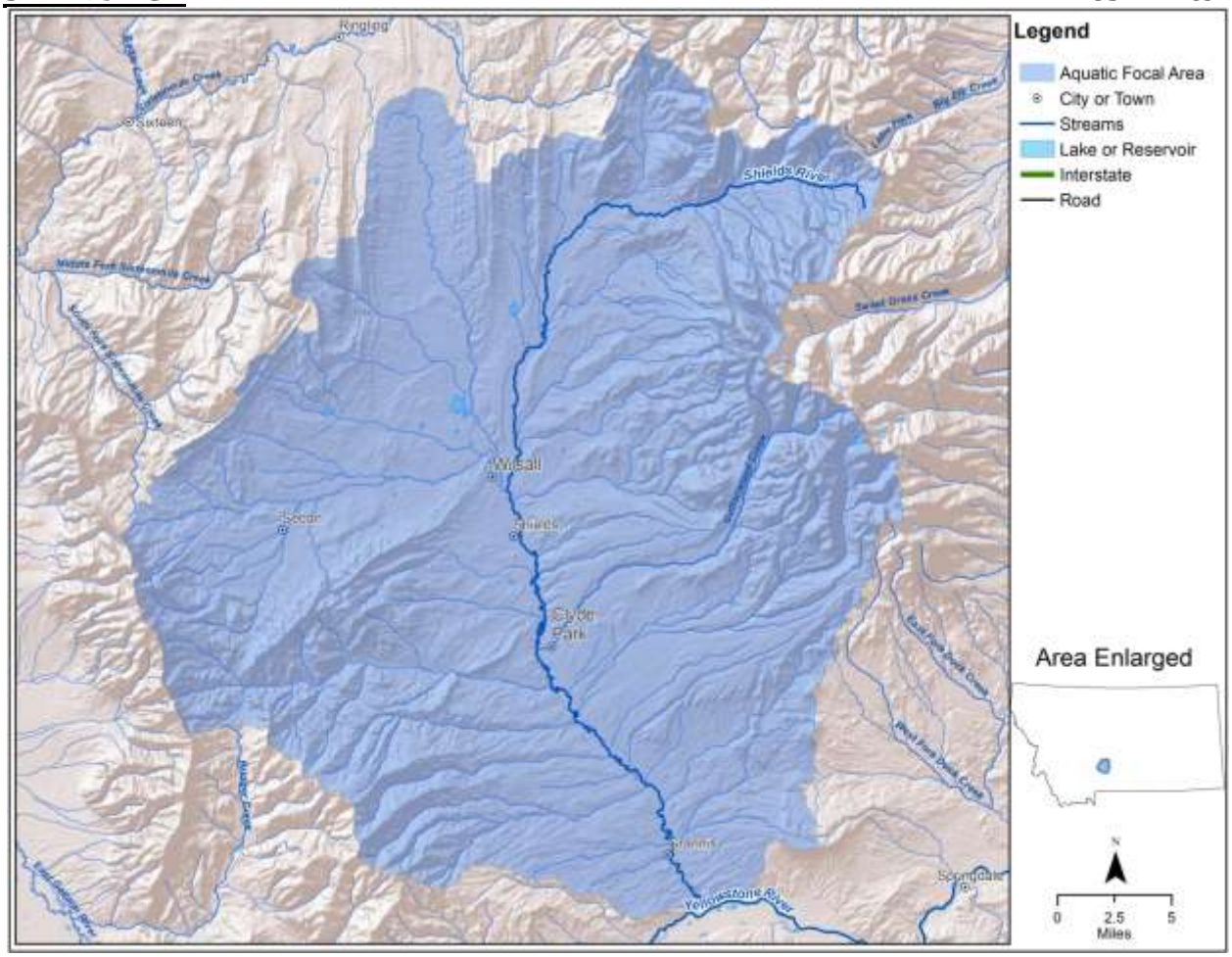

Figure 28. Shields YCT Focal Area in FWP Region 3 (Bozeman)

This area has the best connected YCT population in the Yellowstone River basin and is a core conservation area for YCT. There is a very active watershed group in this Focal Area, as well as existing partnerships between agencies and organizations such as the Park County Conservation District, Shields Valley Watershed Group, the Wildlife Conservation Society, USFS, U.S. Geological Survey, and Trout Unlimited. There is potential for downstream expansion for YCT found in the headwaters. A complete fish passage barrier was completed in 2013 that will secure most of the basin from further invasion of non-native rainbow trout. Recreational use is low in this area.

Current impacts include competition with non-native species, dewatering, development, and incompatible grazing practices. Future threats include expansion of non-native competitors, continued dewatering and incompatible grazing practices, potential gas development, and climate change impacts on temperature and precipitation timing and amount.

Associated CTGCN
Intermountain Valley River
Intermountain Valley Stream
Mountain Stream

Associated SGCN
Yellowstone Cutthroat Trout

REGION 4 WCT DISTRIBUTION/RESTORATION **1,946 miles^2**

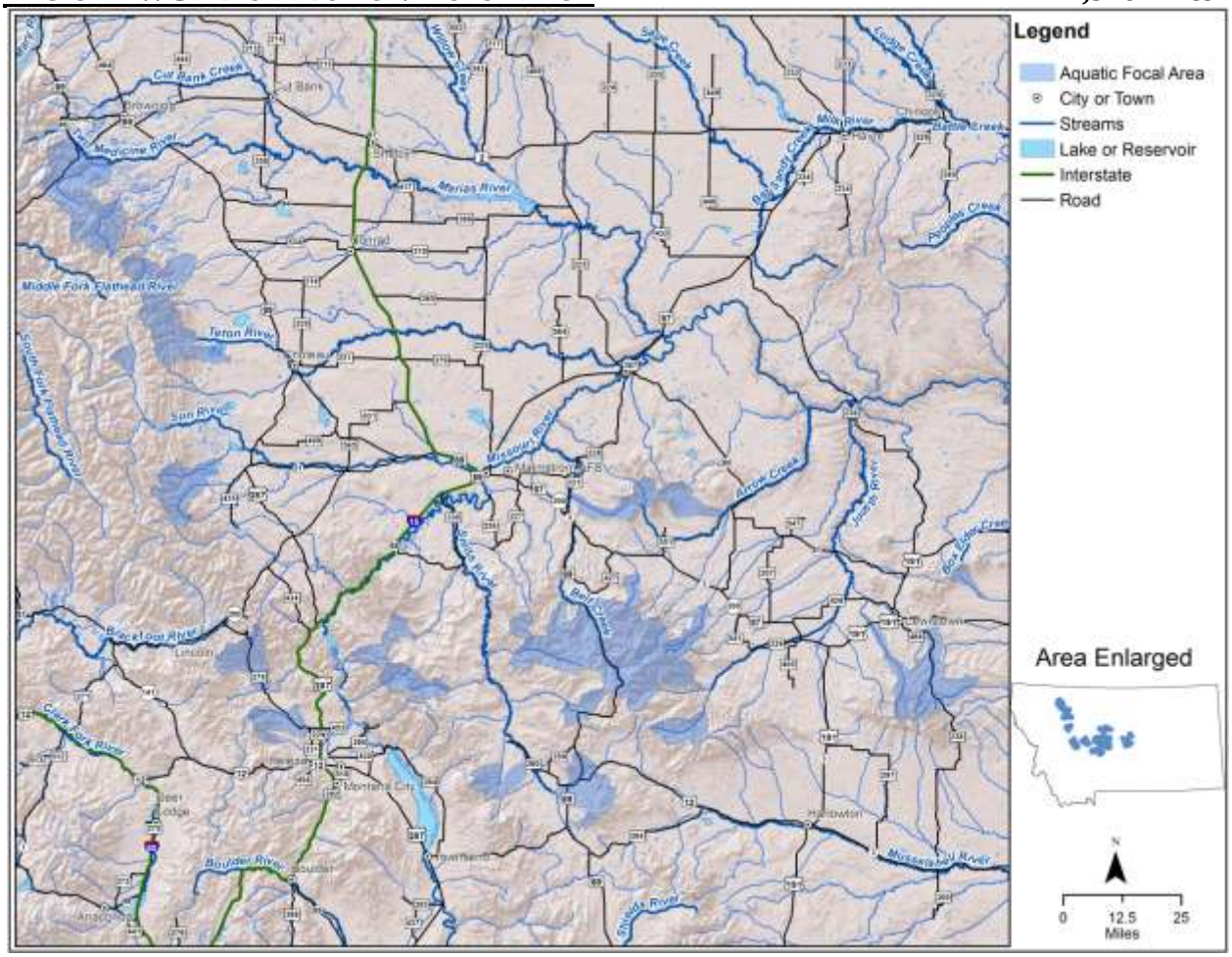

Figure 29. Region 4 WCT Distribution/restoration Focal Area in FWP Region 4 (Great Falls)

This Focal Area is spread across a large area and includes mostly intact habitat throughout the entire range of the WCT conservation population within Region 4. Northern redbelly dace are also found within portions of this Focal Area.

Because this area is spread throughout the Region, impacts, values, partnerships, etc. vary between populations and makes working in this Focal Area challenging. However, partnerships are generally good across this area and include federal and state agencies, Tribal government, NGOs, and private landowners. The protections vary from none (e.g., private land) to significant (Beartooth WMA). The opportunity for restoration varies, but many populations currently are expanding and there is much potential for continued expansion across this Focal Area. Though angler use is not consistent throughout, the area does receive high use and tends to be a popular native sport fish fishery.

Current impacts include dewatering, competition with non-native species, mining impacts, water temperature changes, and incompatible grazing practices. Future threats include continued dewatering, mining, increases in water temperature, and incompatible grazing practices;

hybridization with non-native species; catastrophic events (e.g., fire) causing extirpation of small populations; and climate change impacts on temperature and precipitation timing and amount.

Associated CTGCN
Intermountain Valley River
Intermountain Valley Stream
Mountain Stream
Prairie River
Prairie Stream

Associated SGCN
Northern Redbelly Dace
Westslope Cutthroat Trout

LOWER MUSSELSHELL **897 miles^2**

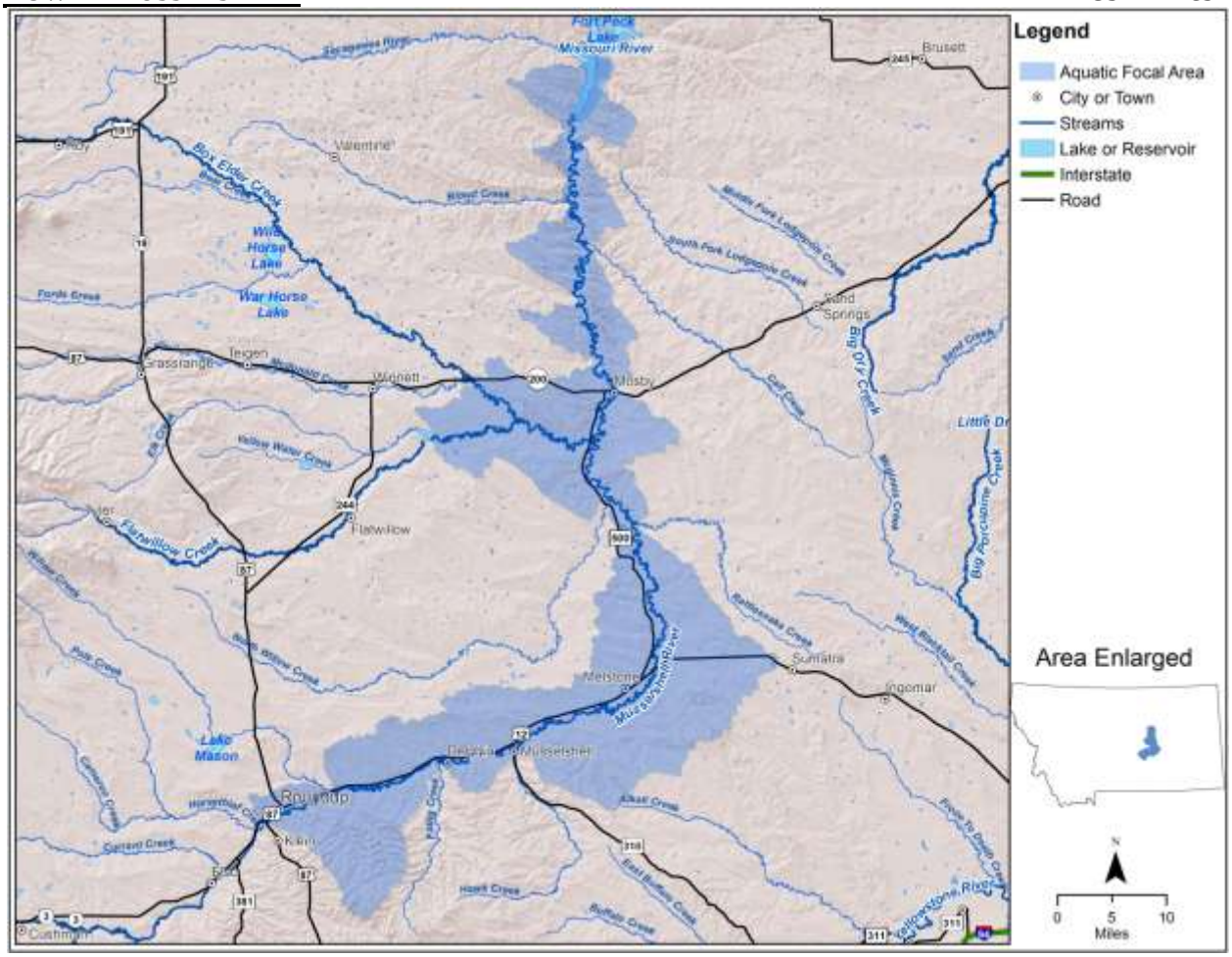

Figure 30. Lower Musselshell Focal Area in FWP Regions 4 and 5 (Great Falls and Billings)

There are several SGCN found within this Focal Area as are many game fish. However, some native species have likely been extirpated from this watershed as well as a historic sauger run. The Musselshell Water Coalition and other watershed groups are working together and are considering sauger reintroduction. Restoration is possible, but the cost may be high and effort extensive. While there is some recreational use of this area, it is not widespread.

The impacts to this Focal Area are severe and the entire fisheries community is at risk due to dewatering and there is limited protection to instream flows. Other current impacts are loss of connectivity (extensive), riparian degradation, and some grazing impacts. Future threats include additional dams and other barriers, ANS, continued dewatering and riparian degradation, incompatible grazing practices, and climate change impacts on temperature and precipitation timing and amount.

Associated CTGCN

Prairie River
Prairie Stream

Associated SGCN

Blue Sucker
Northern Redbelly Dace
Northern Redbelly x Finescale Dace
Sauger

SLOUGH CREEK **201 miles^2**

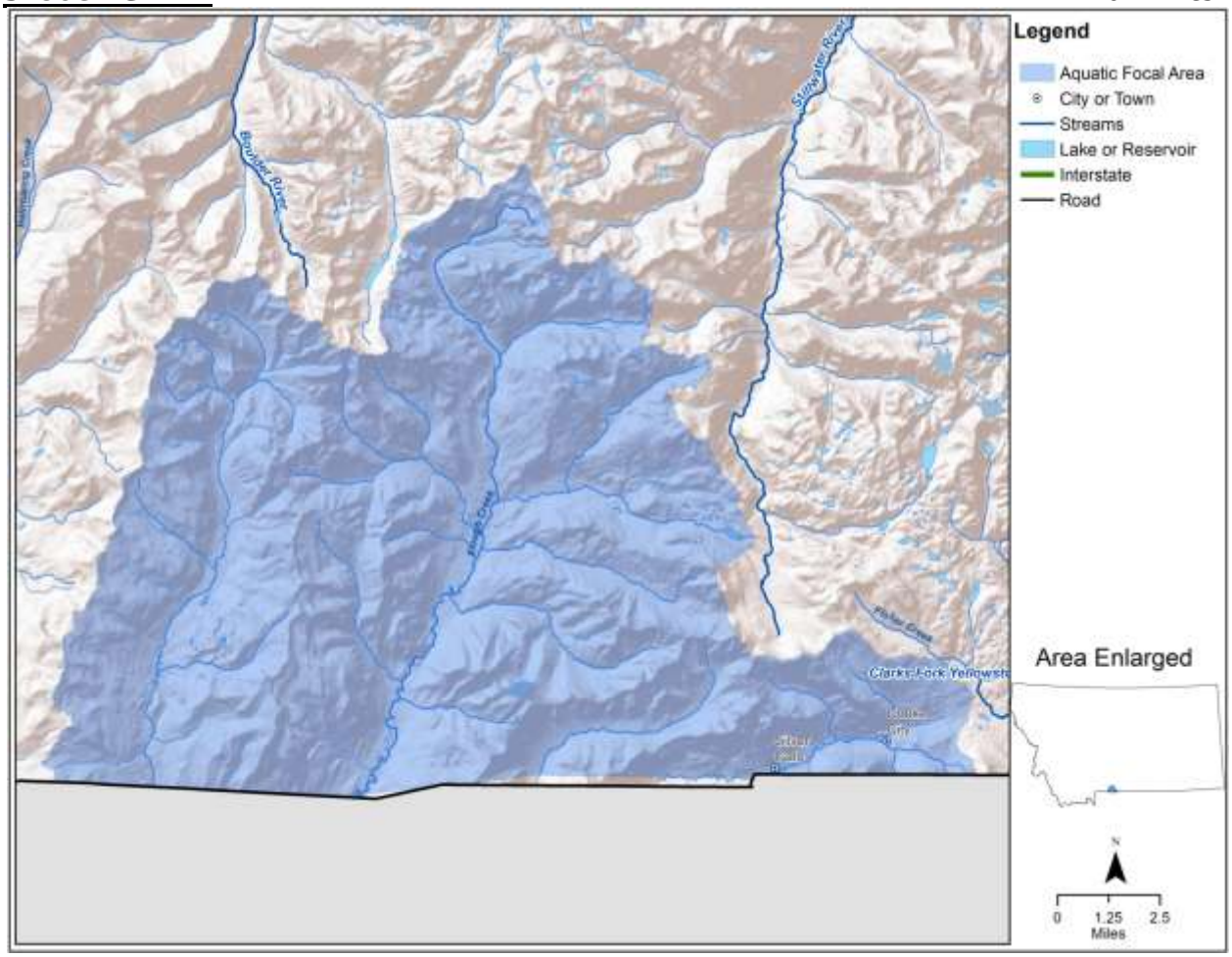

Figure 31. Slough Creek Focal Area in FWP Region 5 (Billings)

This Focal Area is upstream from Yellowstone National Park (YNP) and harbors an aboriginal population of YCT. The activities that occur in this area will greatly influence the success of YCT restoration in Yellowstone. Many partners, including NGOs, and state and federal agencies, are working together to maintain this fishery. YNP and a USFS Wilderness Area afford this Focal Area some protections. The recreational value for this area is high as most areas are open to harvest and all are open to catch and release.

Current impacts to this Focal Area mainly come from non-native (i.e., brook trout, rainbow trout) competition with YCT. Future threats are the same if not managed.

Associated CTGCN
Mountain Stream

Associated SGCN
Yellowstone Cutthroat Trout

MILK RIVER **1,411 miles^2**

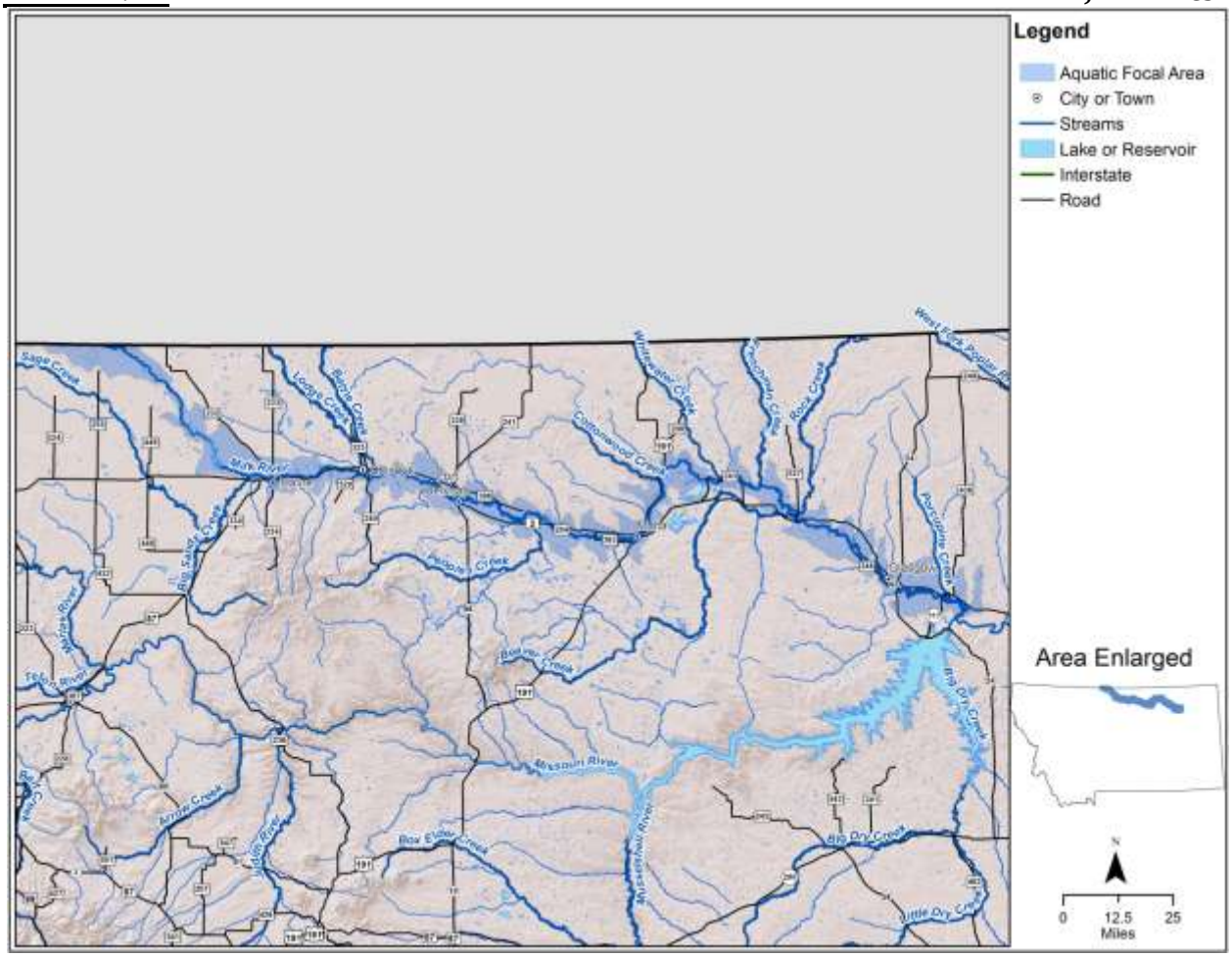

Figure 32. Milk River Focal Area in FWP Region 6 (Glasgow)

The Milk River is one of the areas in the state with the highest diversity of aquatic SGCN and game fish. The upper portion of the river does not have fish barriers, and riparian and instream habitat are in good condition.

The lower portion of the Milk River downstream of Vandalia Dam has a fish assemblage that is highly interconnected to the Missouri River and is high in native and non-native species richness. The abundance of both native and non-native fish can vary greatly on a seasonal or annual basis depending on the river's discharge and the number of fish migrating upstream from the Missouri River. The lower Milk River serves as a spawning ground for several large bodied Missouri River fishes, including several SGCN. The lower portion also contributes sediment and warm water to the Missouri River, which has been shown to increase production of fishes spawning in the Missouri. The middle and lower portion of the Milk River has a very active recreational fishery for native and non-native fish species.

Though the upper portion is in good condition, it still is impacted by irrigation withdrawals and incompatible grazing practices. The future threats are the same in this area if there is no

intervention. The middle and lower Milk River is heavily impacted by many fish barriers that eliminate fish migration on normal and low water years. The Vandalia Dam is a complete barrier to fish migration. Other current impacts to the middle and lower sections include irrigation withdrawals and off stream reservoirs, and development along the riparian corridor. Future threats to the lower portion include a high potential for oil and gas development, continued housing development along the corridor, and climate change impacts on temperature and precipitation timing and amount.

Associated CTGCN

Prairie River
Prairie Stream

Associated SGCN

Blue Sucker
Iowa Darter
Northern Redbelly Dace
Northern Redbelly x Finescale Dace
Paddlefish
Pallid Sturgeon
Pearl Dace
Sauger
Shortnose Gar
Sicklefin Chub
Sturgeon Chub

LOWER MISSOURI RIVER **1,187 miles^2**

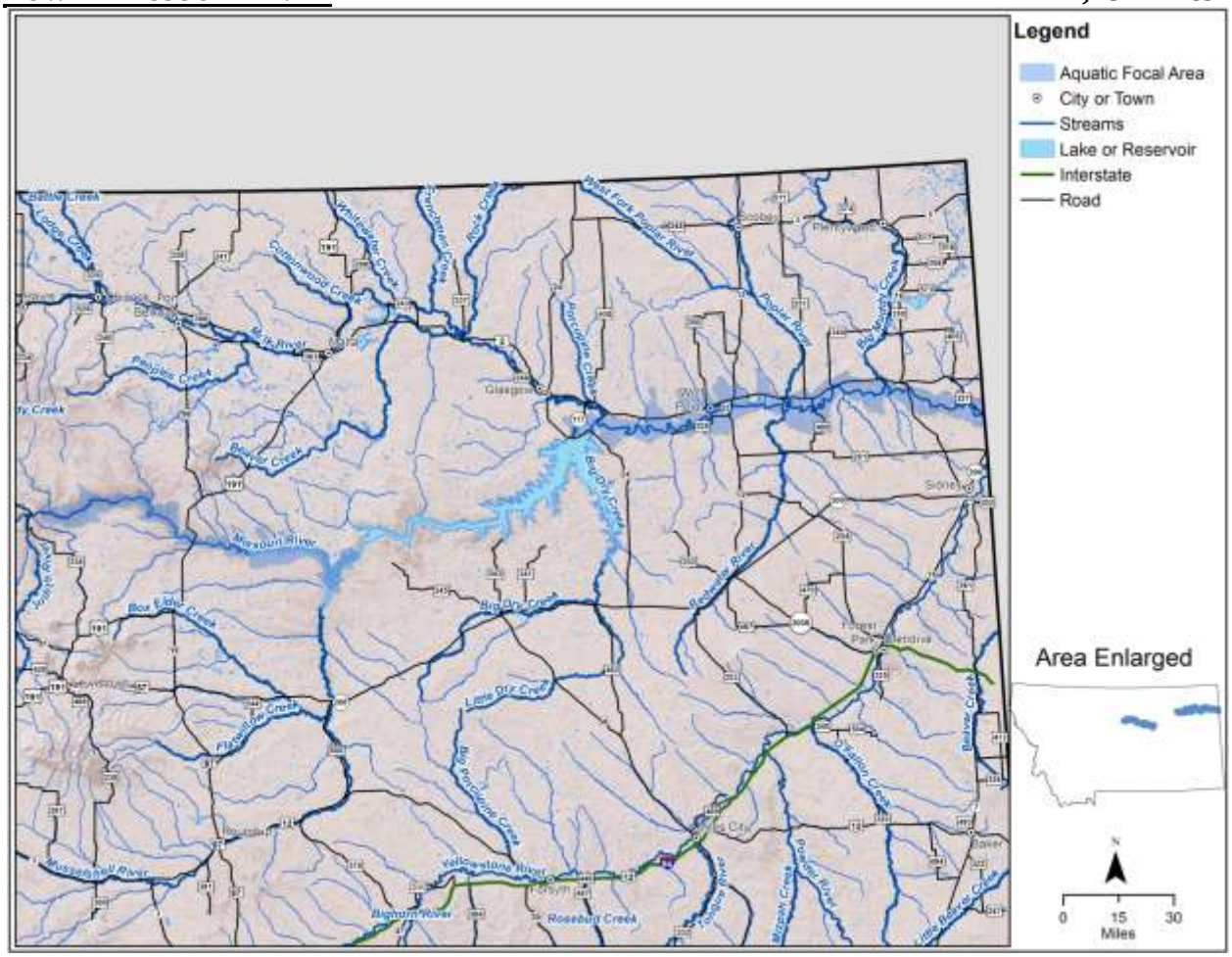

Figure 33. Lower Missouri River Focal Area in FWP Regions 4 and 6 (Great Falls and Glasgow)

The section of the Missouri River upstream of Fort Peck Dam is one of the more unaltered sections of the Missouri River and has a very high diversity of SGCN and game fish. It is a high quality habitat with a near natural hydrograph, sediment, and temperature regime. It provides spawning and rearing habitat for many Fort Peck Reservoir fishes, including several SGCN and the endangered pallid sturgeon. FWP and USFWS are partnered in this area, and the Wild and Scenic River designations offer some protections. This portion of the Missouri harbors an important paddlefish population with high angler interest.

In contrast to upstream of Fort Peck Dam, the downstream section has been severely altered. Fort Peck Reservoir acts as both a sediment and nutrient sink for the Missouri River, and therefore delivers sediment free and nutrient poor water to the Missouri River downstream of the dam. The dam prevents all fish from migrating upstream and has greatly altered the natural flow regime of the Missouri River by holding back spring freshets and discharging higher than natural flows during the winter months. There have been very few channel forming flows since the dam closed off the river in 1937. The water that the dam uses for power generation comes from the bottom of Fort Peck Reservoir, which is cold year round. During the spring and summer months this colder

water greatly reduces the water temperature of the Missouri River for approximately 180 river miles. Although water temperature does rise as it goes downstream, on average the water temperatures in the lower Missouri River near its confluence with the Yellowstone River are two degrees Fahrenheit colder than water upstream of Fort Peck Reservoir.

The altered habitat of the Missouri River due to Fort Peck Dam, is evident in the absence as well as the reduction in relative abundance of many native fishes. Several species such as sturgeon and sicklefin chubs, western silvery minnows, channel catfish, and stonecats become more abundant the further downstream you go from Fort Peck Dam. Additionally, the growth rates of fishes like sauger, channel catfish, and pallid sturgeon are slower in the Missouri River near Fort Peck Dam when compared to the Missouri River upstream of the dam or the Yellowstone River. For some species water temperatures may be too cold to meet their minimum spawning requirements.

Current impacts to this Focal Area include ANS, incompatible grazing practices, and oil and gas development. The bigger impacts are associated with water management: upstream dams, reservoir elevations, altered temperature regime, and water withdrawals. Future threats are the same as current impacts if there are no management changes.

Associated CTGCN
Mixed System
Prairie River
Prairie Stream

Associated SGCN
Blue Sucker
Iowa Darter
Northern Redbelly Dace
Northern Redbelly x Finescale Dace
Paddlefish
Pallid Sturgeon
Pearl Dace
Sauger
Shortnose Gar
Sicklefin Chub
Sturgeon Chub

YELLOWSTONE RIVER **2,723 miles^2**

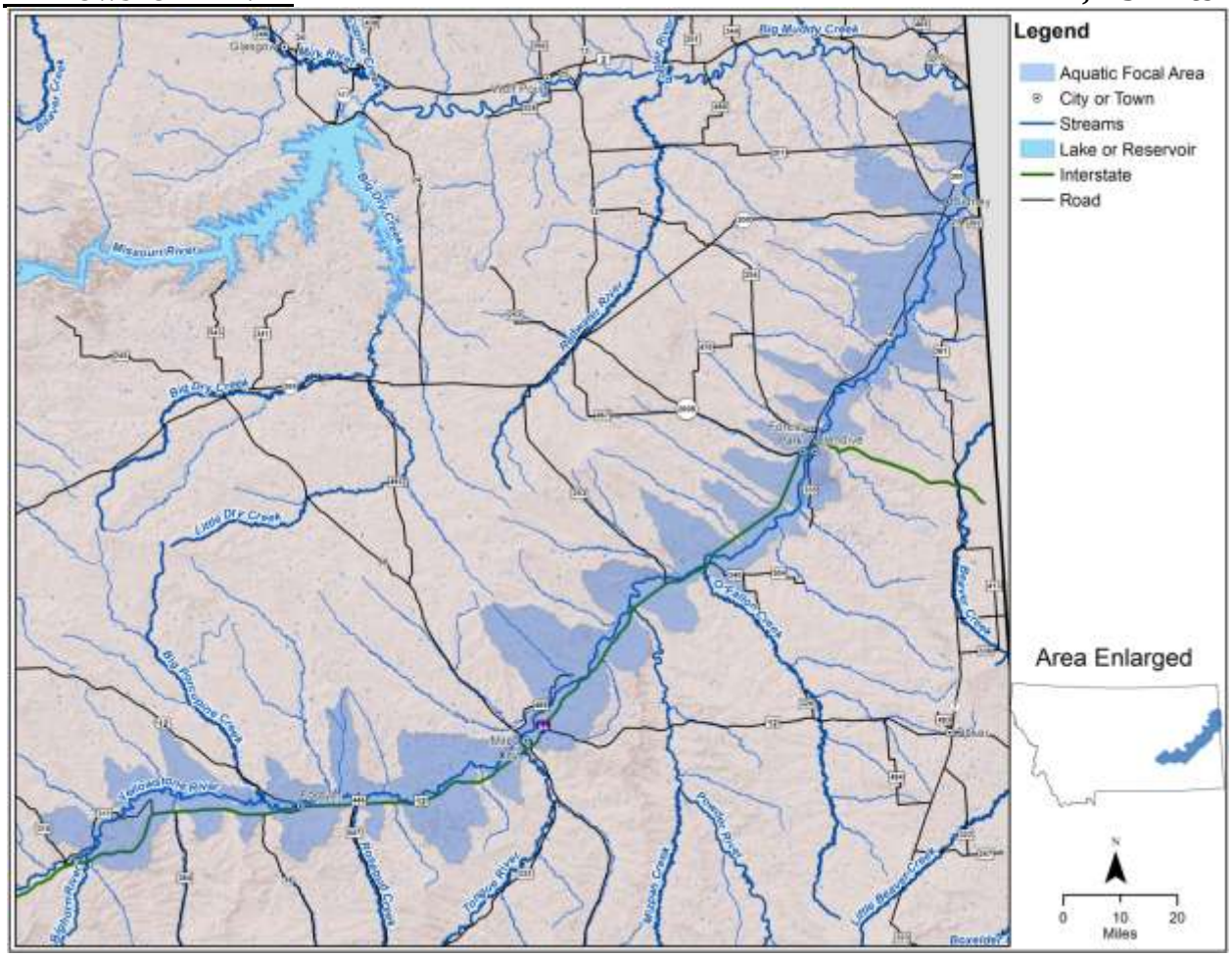

Figure 34. Yellowstone River Focal Area in FWP Region 7 (Miles City)

The Yellowstone River mainstem is home for many aquatic SGCN, native species, and a great diversity of game fish. It is an important river for spawning by the federally endangered pallid sturgeon. It also is an important river for a spawning migration of paddlefish from Lake Sakakawea. The paddlefish migration creates a high angler interest. There are several partnerships in this area including local conservation districts, state and federal agencies, and occasionally individual landowners. The majority of this watershed is held in private ownership. This area is heavily used by anglers, hunters, wildlife watchers, and other river recreationists.

Coal and gas development is a current impact to this Focal Area. Dewatering, as it relates to instream flow and fish habitat, and fish passage at multiple low head diversion dams, are other issues for the Focal Area. The future threats remain the same as current impacts if they are not addressed.

Associated CTGCN

Mixed System
Prairie River
Prairie Stream

Associated SGCN

Blue Sucker
Iowa Darter
Northern Redbelly Dace
Paddlefish
Pallid Sturgeon
Sauger
Shortnose Gar
Sicklefin Chub
Sturgeon Chub

TONGUE RIVER **1,765 miles^2**

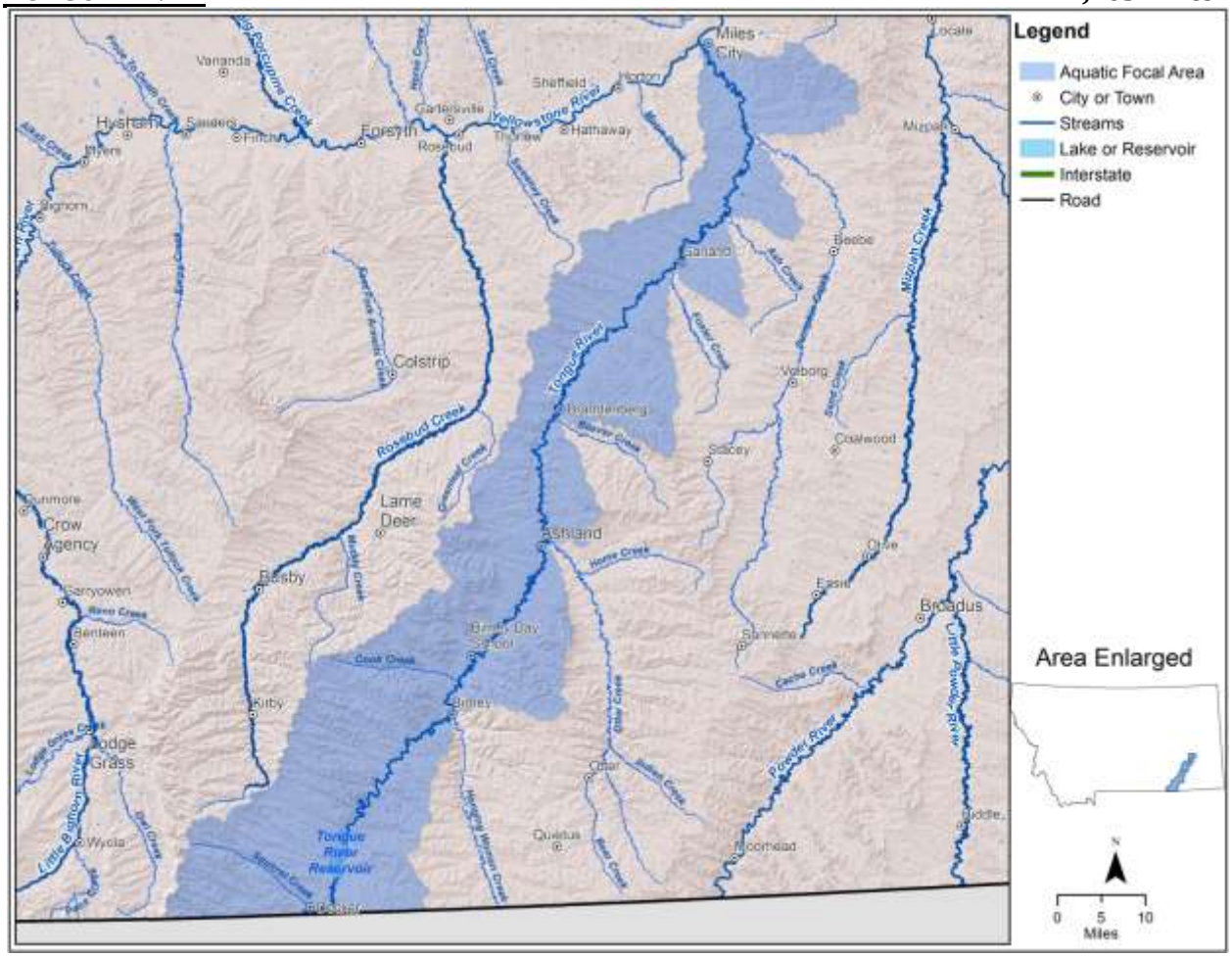

Figure 35. Tongue River Focal Area in FWP Region 7 (Miles City)

The Tongue River has a high diversity of game fish and is an important spawning tributary for numerous native fish, including several SGCN. Connectivity between the Tongue and Yellowstone systems and associated tributaries is important for long term persistence of fish assemblages.

There are several partnerships in this area including local conservation districts, state and federal agencies, and occasionally individual landowners. The majority of this watershed is held in private ownership. This area is heavily used by anglers, hunters, wildlife watchers, and other river recreationists.

Coal and gas development is a current impact to this Focal Area. Other impacts include dewatering as it relates to instream flow, fish habitat, and water rights. The future threats remain the same as current impacts if they are not addressed.

Associated CTGCN
Prairie River
Prairie Stream

Associated SGCN
Blue Sucker
Paddlefish
Sauger
Sturgeon Chub

TERRESTRIAL REGIONAL FOCAL AREAS

A total of 55 Tier I and 61 Tier II terrestrial Focal Areas were identified. These ranged in size from a small area (37 miles^2) providing connectivity in northwestern Montana, to a large contiguous sagebrush and grassland landscape in eastern Montana (3,983 miles^2). It is clear by looking at the maps in Appendices L and M that the approach to identify terrestrial Focal Areas differed east and west of the Continental Divide.

In eastern Montana, the teams focused on large intact landscapes to provide the largest area possible to develop conservation actions for multiple SGCN. Connectivity between protected landscapes (e.g., wilderness areas, roadless areas) was the focus in the western part of the state, resulting in numerous smaller Focal Areas.

FWP staff further refined the Tier I Focal Areas by ranking them and identifying the top two within each FWP region for a total of 14 (Figure 36). The remaining Tier I and Tier II Focal Areas can be found in Appendices L-M. Examples of conservation actions that may be implemented in these Focal Areas can be found under the associated CTGCN and SGCN specific pages. The listed conservation actions, while thorough, may not represent all actions that should be implemented within each Focal Area. Listed actions should be reviewed prior to a project being implemented to determine relevancy to the project goals. Additional actions should be explored and implemented if they benefit the Focal Area, CTGCN, and/or SGCN.

While these areas were identified to focus conservation efforts, it is not implied that efforts only be restricted to these 14 areas. Implementing conservation actions in any Tier I or Tier II Focal Area has tremendous conservation value for Montana.

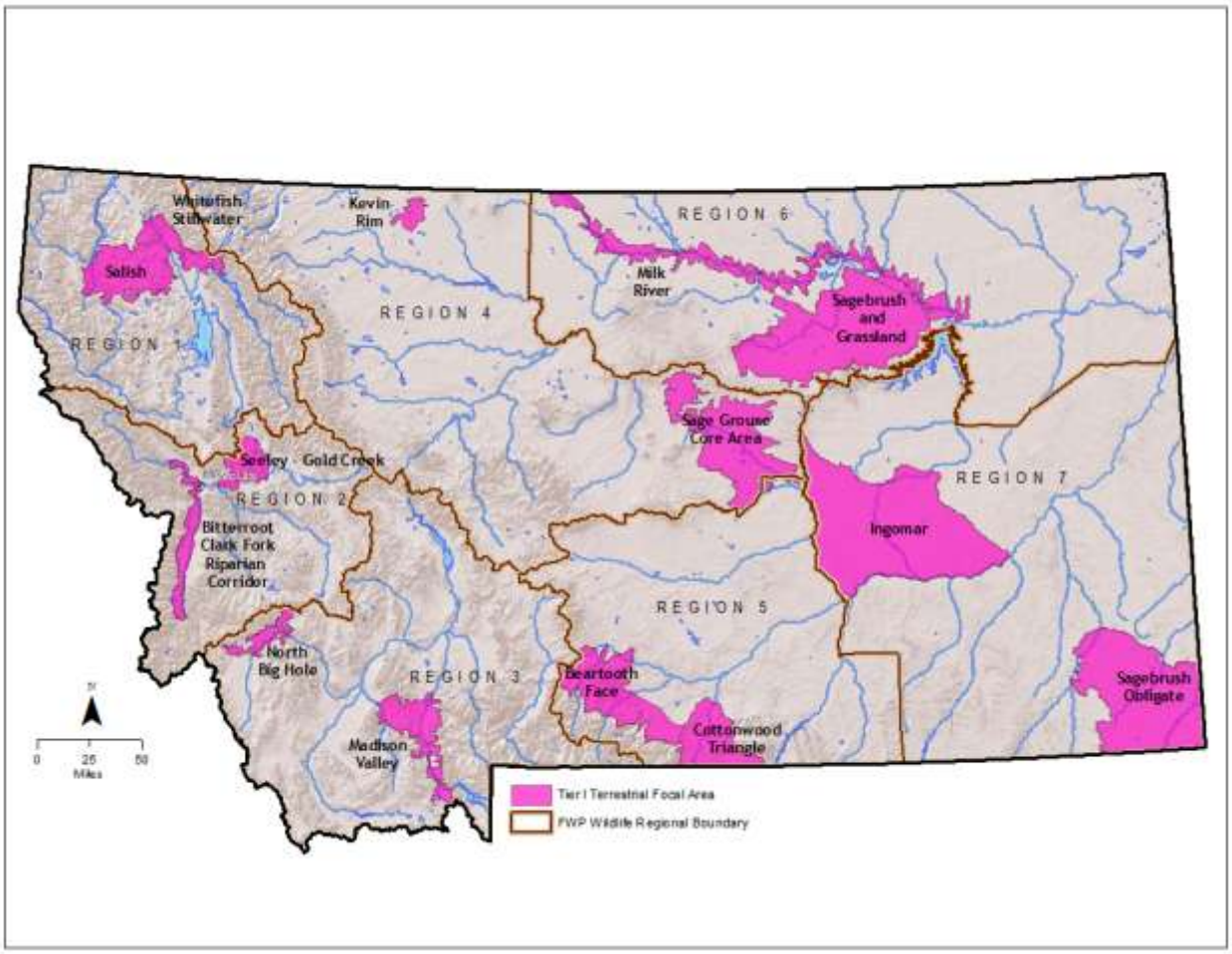

Figure 36. Top 14 Terrestrial Focal Areas

WHITEFISH STILLWATER **396 miles^2**

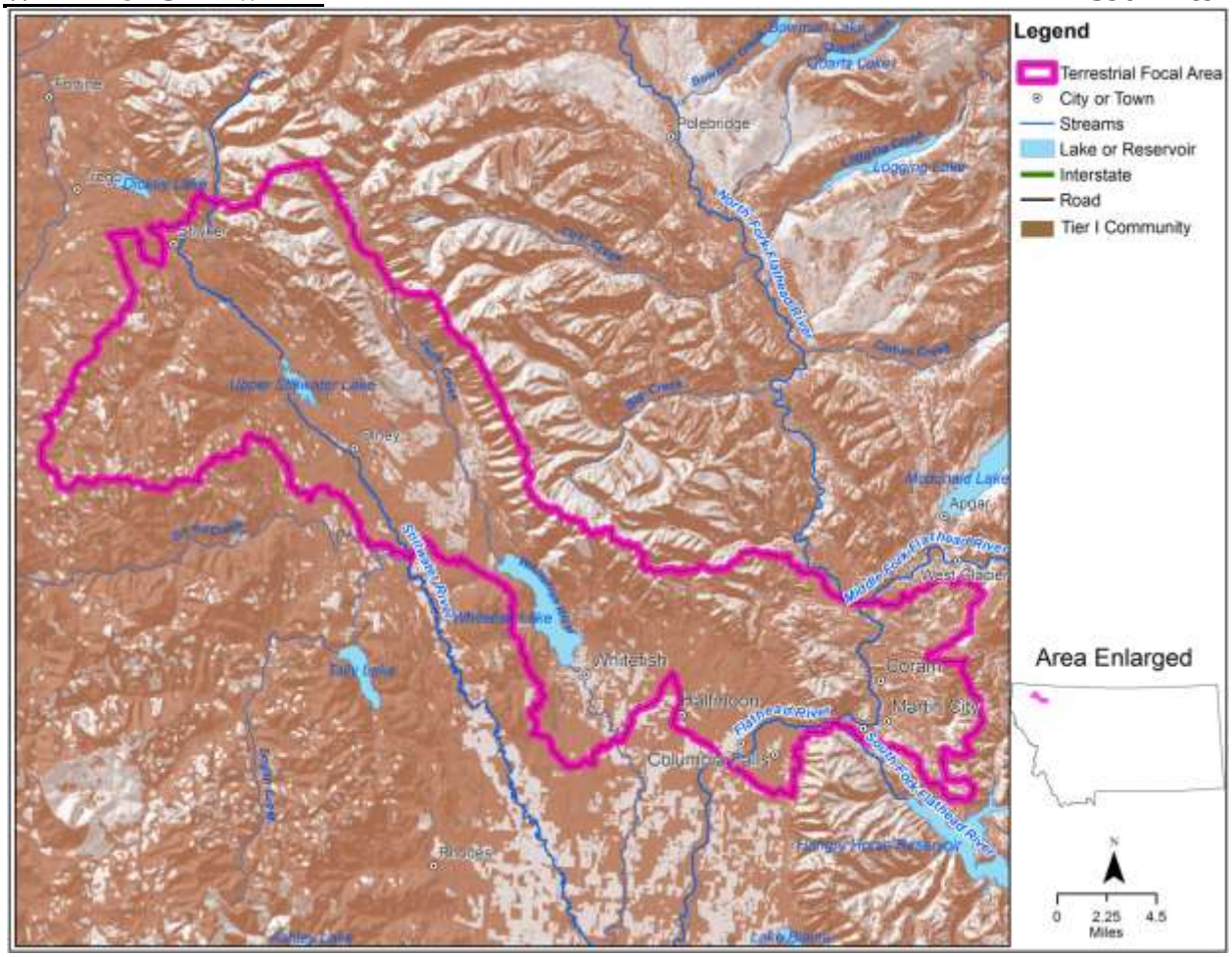

Figure 37. Whitefish Stillwater Focal Area in FWP Region 1 (Kalispell)

This Focal Area consists of a mix of public (e.g., Flathead National Forest, DNRC) and private lands, including industrial forest and agricultural lands that form part of the western boundary of the Crown of the Continent. This Focal Area is very important to maintaining wildlife connectivity between the northern Rockies of Canada, Glacier National Park, and the Swan Valley/Bob Marshall Wilderness complex to the south. It also helps connect the Northern Continental Divide to the Salish Focal Area and Cabinet-Yaak Ecosystems. The Whitefish Stillwater Focal Area forms the western portion of the Northern Continental Divide Ecosystem's grizzly bear core area. It also is part of the Whitefish-Swan ridge of mountains that form a major raptor migratory flyway, and much of the area is comprised of CTGCN.

Overall, few of the private land acres are protected by conservation easements. Most of the existing conservation easements are relatively small and held by Montana Land Reliance, The Nature Conservancy, and Flathead Land Trust. The area does include the Flathead National Forest's 8.9 mile^2 Le Beau Research Natural Area (RNA) and the Coram Experimental Forest. Active conservation partnerships and strong community support exist in the Whitefish area. A significant portion of the Whitefish Stillwater Focal Area provides the source of Whitefish's

water supply and forms the headwaters of Whitefish Lake. The entire Focal Area supports high recreational uses including Whitefish Trails (about 60 miles of public access hiking/biking trails on DNRC lands), fishing, hunting, berry picking, hiking, and wildlife watching. Restoration opportunities exist on private agricultural lands and to a limited degree on forested lands. There are excellent opportunities to restore whitebark pine.

Current impacts and future threats to the area include high rates of recreational and home development that has been occurring in the region over the last two decades. This development has been especially great near Whitefish and Columbia Falls, as well as on outlying rural lands along USFS and other public land boundaries. As development increases, it threatens the large acreage of corporate timberlands. The number of lakes and streams makes this area vulnerable to ANS. Other impacts include threats from terrestrial invasive species, habitat fragmentation, and a changed fire regime. Climate change is considered a future threat and could have long term impacts.

Associated CTGCN

Conifer-dominated Forest and Woodland (mesic-wet)
Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Shrubland
Floodplain and Riparian
Montane Grassland
Open Water
Wetlands

Associated SGCN

Amphibians
Western Toad

Birds
American Bittern
Black Swift
Black Tern
Black-backed Woodpecker
Bobolink
Boreal Chickadee
Brewer's Sparrow
Brown Creeper
Cassin's Finch
Clark's Nutcracker
Common Loon
Common Tern
Evening Grosbeak
Flammulated Owl
Forster's Tern
Golden Eagle
Gray-crowned Rosy-Finch
Great Blue Heron
Great Gray Owl
Harlequin Duck
Horned Grebe
Le Conte's Sparrow
Lewis's Woodpecker
Long-billed Curlew
Northern Goshawk
Northern Hawk Owl
Peregrine Falcon
Pileated Woodpecker
Trumpeter Swan
Varied Thrush
Veery
White-tailed Ptarmigan

Mammals
Canada Lynx
Fisher
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

Reptiles
Northern Alligator Lizard
Western Skink

SALISH **920 miles^2**

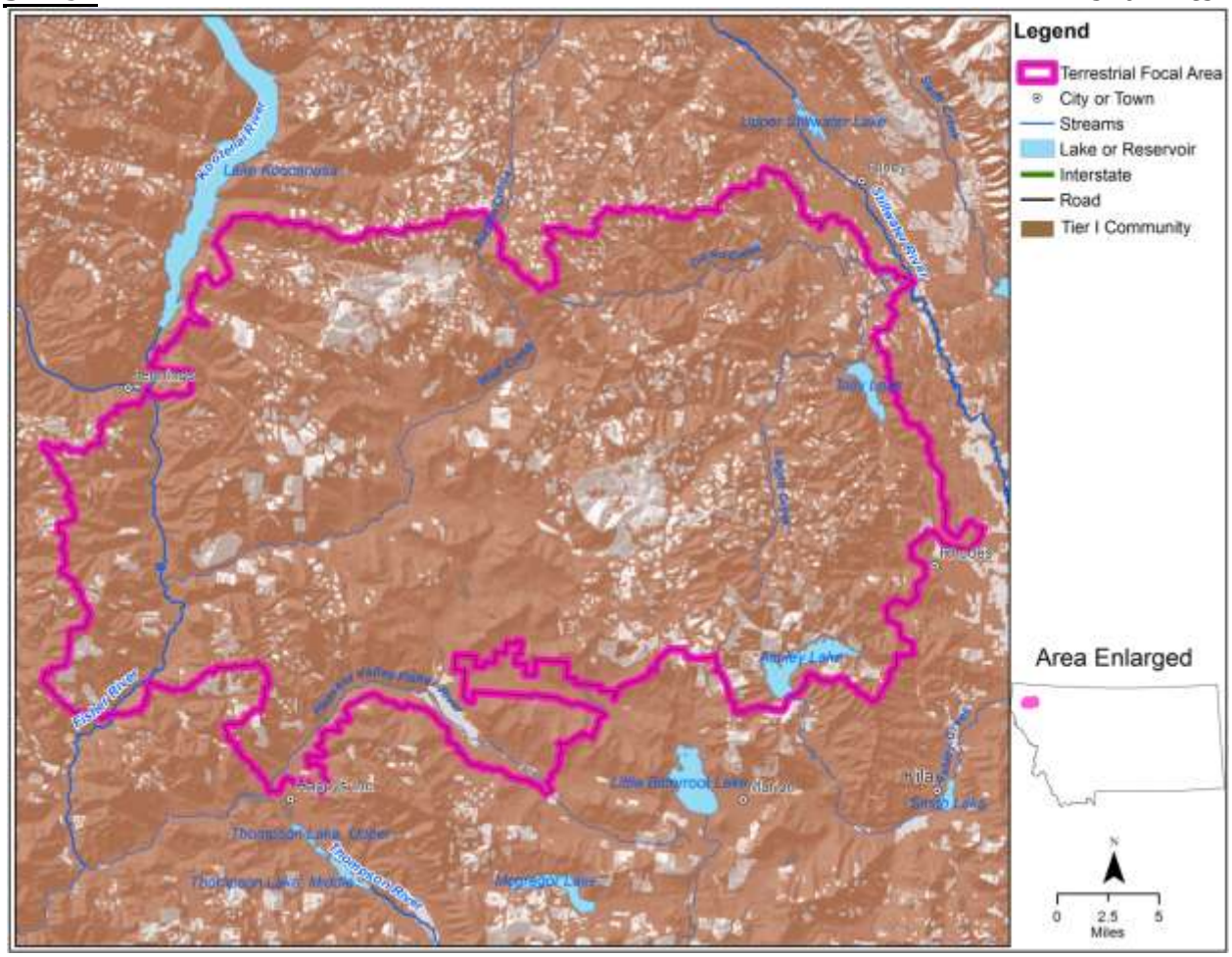

Figure 38. Salish Focal Area in FWP Region 1 (Kalispell)

This Focal Area provides an important linkage between the North Continental Divide and the Cabinet-Yaak Ecosystems. The central part of this linkage is the relatively new Lost Trail NWR. Lost Trail protects exceptional Palouse prairie grasslands and outstanding restored wetland habitats as well as superior views and quality hunting/recreational opportunities. However, wildlife habitat values are highly threatened with development along NWR borders. This Focal Area supports nesting trumpeter swans and provides breeding habitat for western toads. This area is home to one of the few areas the federally threatened Spalding catchfly (native grassland plant) is found in Montana. This area also is important for elk migration and winter range for elk and mule deer.

About 14 miles^2 of this Focal Area are protected by the Lost Trail NWR and several leased DNRC parcels within the NWR boundaries. Another five miles^2 of private wetland/grassland on the valley floor are protected by Natural Resources Conservation Service (NRCS) Wetland Reserve Program conservation easements. A few parcels are protected by land trust held conservation easements. The vast majority of the remaining acreage in this Focal Area is owned by Plum Creek Timber Company. Existing partnerships that support conservation in this area include FWP, USFWS, NRCS, the Rocky Mountain Elk Foundation, Vital Ground, Flathead

Audubon, Montana Loon Society, and the American Bird Conservancy. This area has several opportunities for restoration of riparian and grassland areas, aspen communities, and ponderosa pine communities.

Current impacts to the area include development, incompatible timber harvest practices, and invasive weeds. Future threats are the same as current impacts and are widespread and imminent. In addition, climate change is a future threat and could have long term impacts. Increased recreation may also have negative impacts in the future.

Associated CTGCN

Conifer-dominated Forest and Woodland (mesic-wet)
Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Shrubland
Floodplain and Riparian
Montane Grassland
Open Water
Wetlands

Associated SGCN

Amphibians
Coeur d'Alene Salamander
Western Toad

Birds
American Bittern
Black Swift
Black Tern
Black-backed Woodpecker
Bobolink
Boreal Chickadee
Brewer's Sparrow
Brown Creeper
Cassin's Finch
Clark's Nutcracker
Common Loon
Common Tern
Evening Grosbeak
Flammulated Owl
Forster's Tern
Golden Eagle
Gray-crowned Rosy-Finch
Great Blue Heron
Great Gray Owl
Harlequin Duck
Horned Grebe
Le Conte's Sparrow
Lewis's Woodpecker
Long-billed Curlew
Northern Goshawk
Peregrine Falcon
Pileated Woodpecker
Trumpeter Swan
Varied Thrush
Veery
White-tailed Ptarmigan

Mammals
Canada Lynx
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

Reptiles
Northern Alligator Lizard
Western Skink

SEELEY-GOLD CREEK **371 miles^2**

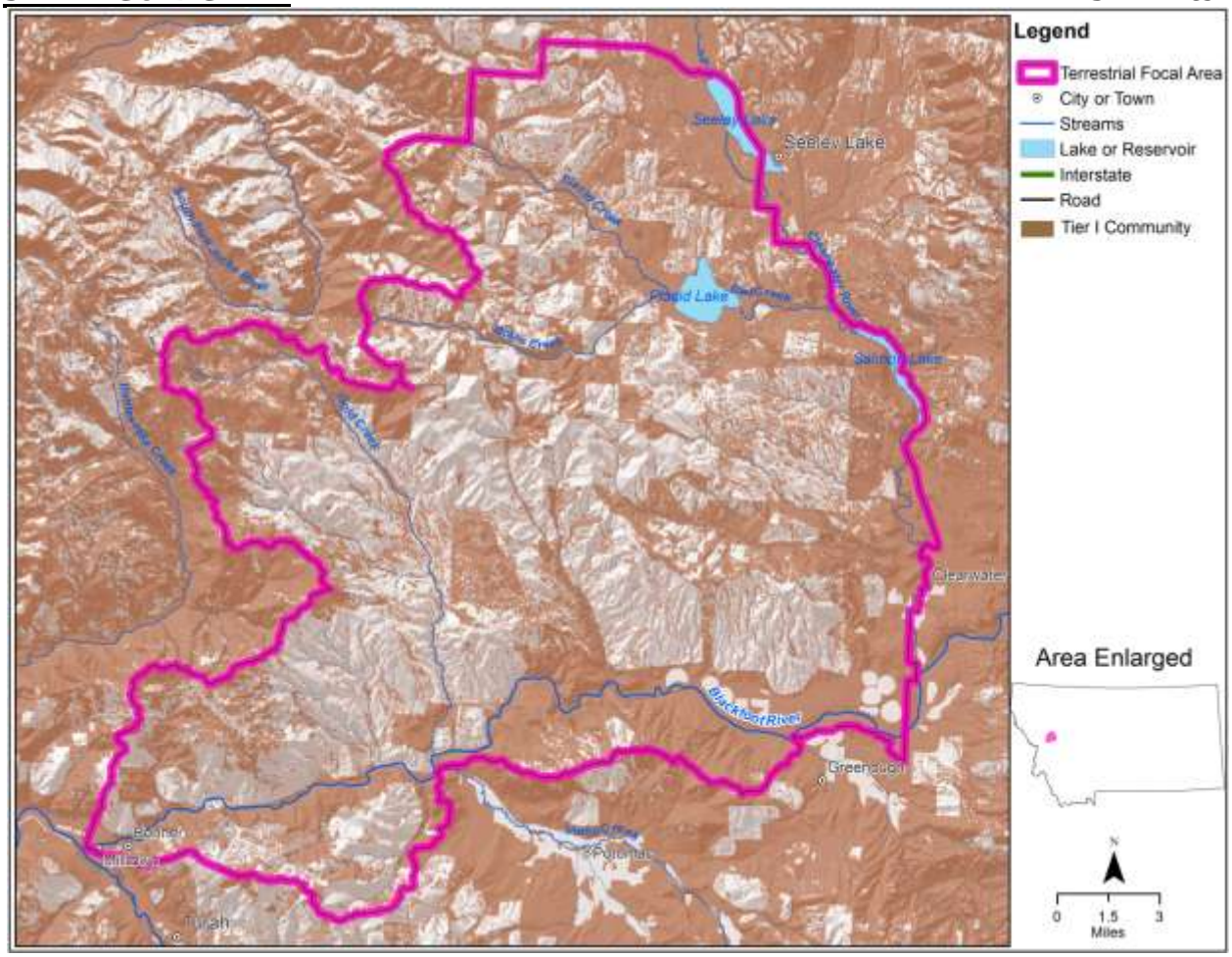

Figure 39. Seeley-Gold Creek Focal Area in FWP Region 2 (Missoula)

This area supports a high diversity of species and habitats, and has a high density of wetlands. It is critical "front country" to the Rattlesnake Wilderness Area, and provides critical connectivity between the Bob Marshall Wilderness Area; the Swan and Mission ranges to the northeast; and the Garnet, Sapphire, Flint, and Bitterroot ranges to southwest. This area supports high biodiversity, including many SGCN. It is a Canada lynx stronghold, supports grizzly bears, has numerous SGCN toad breeding sites, at least one northern bog lemming site, and several great blue heron rookeries. This Focal Area is adjacent to the Shoofly Meadow RNA that also supports northern bog lemmings, and the Sheep Mountain Fen which is a USFS botanical area. This area also contains a small stand of open, old-growth ponderosa pine habitat that is protected by conservation easement.

This area is extremely valuable in spite of logging and recent large burns because it is largely undeveloped. The area is relatively unfragmented as current housing development mostly is taking place around the periphery. There are few current protections in this Focal Area, as it mostly is private land, but this area is adjacent to protected areas such as the Rattlesnake Wilderness Area, Rattlesnake National Recreation Area, Blackfoot-Clearwater WMA, Tribal

wilderness, and the Blackfoot Valley. Many conservation agencies and organizations are working in the Blackfoot and Clearwater valleys including Five Valleys Land Trust; Blackfoot Challenge; Rocky Mountain Elk Foundation; Seeley Lake and Missoula community foundations; Missoula County; Vital Ground; BLM; USFS; DNRC; and Plum Creek Timber Company. The opportunity for new partnerships also is great.

Because this area is very productive, it is already recovering from logging and fire impacts. Restoration can easily be continued, but the cost could be high if acquisition is considered, as a large area currently is for sale. Restoration will be compromised if significant portions are sold and developed for housing. This area is valuable for all types of recreation and, because of its proximity to Missoula, is heavily used for hunting, hiking, camping, fishing, and other outdoor recreational activities.

Current and past impacts to the area include housing development around the periphery, roads, incompatible timber harvest practices, incompatible grazing practices, heavy recreational use impacts, and invasive weeds. Future threats are the same as current impacts and are widespread and imminent. Housing development is an immediate threat, as large tracts of land are currently for sale, and some recently-sold parcels are already seeing housing development. In addition, climate change may negatively impact this area in the future.

Associated CTGCN

Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Montane Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Wetlands

Associated SGCN

Amphibians
Western Toad

Birds
American Bittern
Black Swift
Black Tern
Black-backed Woodpecker
Bobolink
Boreal Chickadee
Brewer's Sparrow
Brown Creeper
Cassin's Finch
Clark's Nutcracker
Common Loon
Common Tern
Evening Grosbeak
Flammulated Owl
Golden Eagle
Gray-crowned Rosy-Finch
Great Blue Heron
Great Gray Owl
Harlequin Duck
Horned Grebe
Lewis's Woodpecker
Long-billed Curlew
Northern Goshawk
Peregrine Falcon
Pileated Woodpecker
Trumpeter Swan
Varied Thrush
Veery
White-tailed Ptarmigan

Mammals
Canada Lynx
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Preble's Shrew
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

Reptiles
Northern Alligator Lizard
Western Skink

BITTERROOT-CLARK FORK RIPARIAN CORRIDOR **372 miles^2**

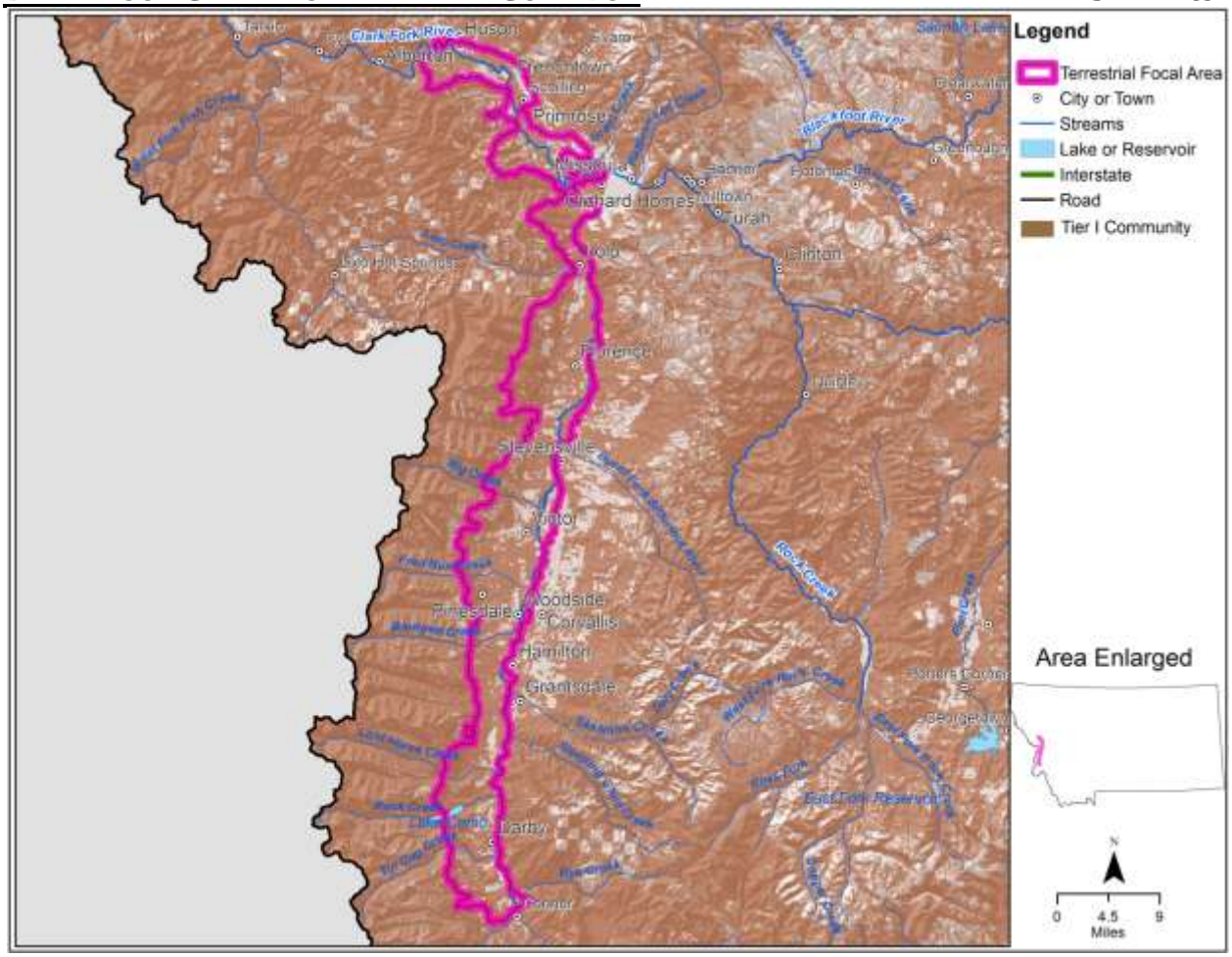

Figure 40. Bitterroot-Clark Fork Riparian Corridor Focal Area in FWP Region 2 (Missoula)

This high biodiversity area is an important north-south migration corridor for songbirds and owls and part is designated as an Important Bird Area (IBA) by the National Audubon Society. It is a major breeding area for Lewis's woodpeckers and numerous great blue heron rookeries are found throughout the area. The riparian corridor is very wide in places, and mostly continuous throughout the length of the Focal Area.

Most of this Focal Area is private land, although some areas offer protections including several conservation easements, the Lee Metcalf NWR, the Teller Wildlife Refuge (private nonprofit), and MPG Ranch (private conservation ranch). There are many existing partnerships in this area, such as Five Valleys Land Trust; Rocky Mountain Elk Foundation; and Montana Land Reliance, and the potential exists for many more. Though there is opportunity for restoration, it may be difficult and come at a high cost due to the large number of landowners in this Focal Area. The diverse recreational use is high, but likely is below what resources could support because of private land ownership.

Current impacts to the area include housing development, dewatering, cottonwood tree removal, pollution from urban runoff and superfund sites, habitat fragmentation, and impacts from illegal OHV use. Future threats are the same as current impacts and are imminent. In addition, incompatible grazing and agricultural practices and climate change may negatively impact this area in the future.

Associated CTGCN

Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Montane Grassland
Open Water
Wetlands

Associated SGCN

Amphibians
Coeur d'Alene Salamander
Western Toad

Birds
American Bittern
Black Rosy-Finch
Black Swift
Black Tern
Black-backed Woodpecker
Bobolink
Boreal Chickadee
Brewer's Sparrow
Brown Creeper
Cassin's Finch
Clark's Nutcracker
Common Tern
Evening Grosbeak
Flammulated Owl
Forster's Tern
Golden Eagle
Gray-crowned Rosy-Finch
Great Blue Heron
Great Gray Owl
Harlequin Duck
Horned Grebe
Lewis's Woodpecker
Long-billed Curlew
Northern Goshawk
Peregrine Falcon
Pileated Woodpecker
Sage Thrasher
Varied Thrush
Veery

Mammals
Canada Lynx
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Preble's Shrew
Townsend's Big-eared Bat
Wolverine

Reptiles
Northern Alligator Lizard
Western Skink

MADISON VALLEY **641 miles^2**

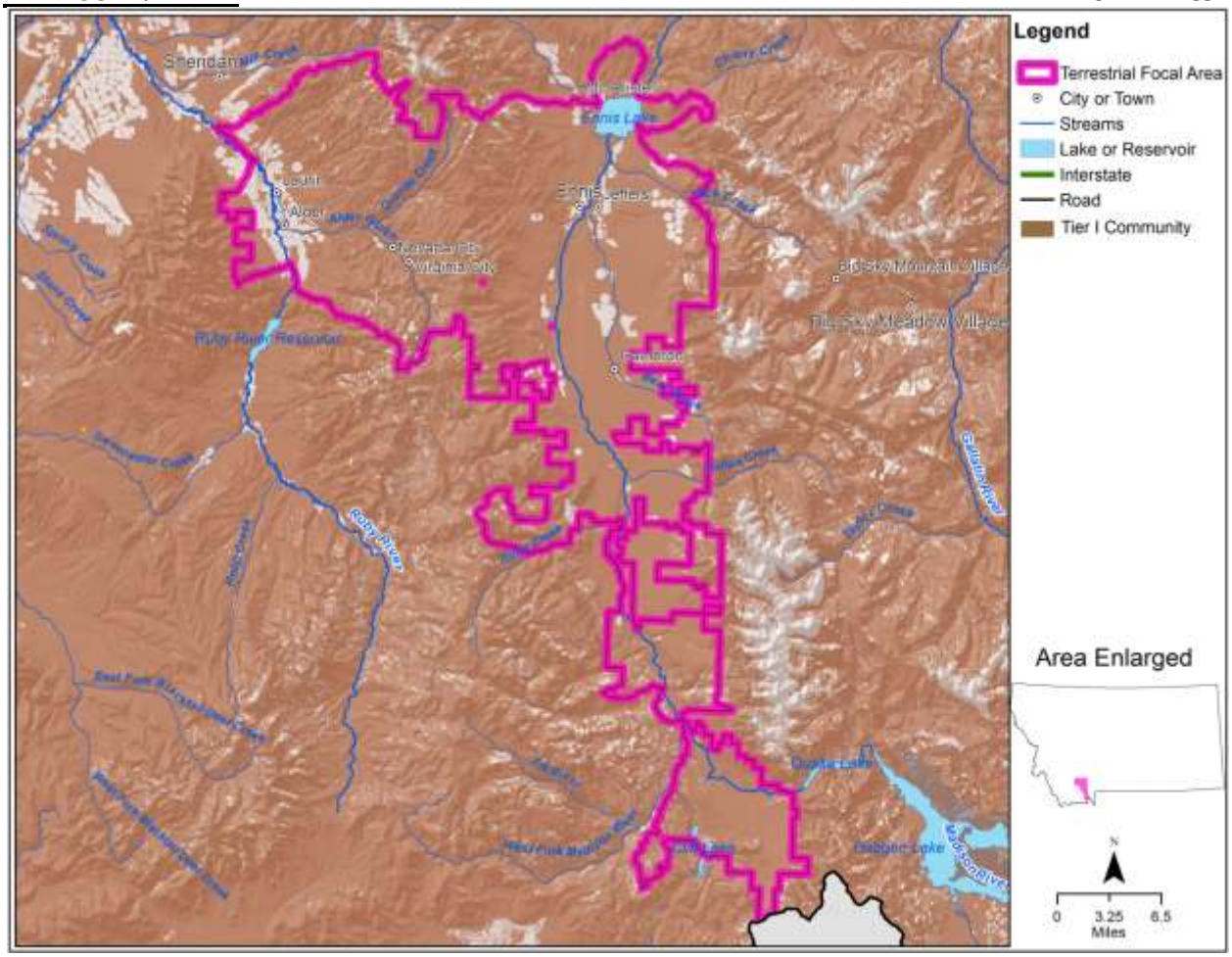

Figure 41. Madison Valley Focal Area in FWP Region 3 (Bozeman)

This Focal Area provides connectivity to designated wilderness areas, includes important areas for grizzly bears and wolverines, and contains important winter and summer range for elk, antelope, mule deer, and bighorn sheep. It also is an important area for grassland birds, contains many wetlands and riparian areas, and is therefore important wetland bird and waterfowl habitat. In addition this area is a designated IBA by the National Audubon Society. There is high recreational use including fishing, hunting, and wildlife watching.

There are some existing conservation easements in this area, but the opportunity for more is great. The existing partnerships are successful and include landowners, a county commission, and county planners, as well as NGOs and state and federal agencies. There are on-going wetland restoration projects underway in the valley and the potential for additional wetland and riparian restoration opportunities is high.

Current impacts to the area include subdivision development and possible recreation impacts. Certain agricultural practices which could be deleterious to CTGCN and SGCN include chronic livestock overstocking and overuse. Also, some powerlines may pose hazards to some SGCN.

There is a high development threat in the future which would include impacts from subdivisions, fences, and recreation. Other future threats are the same as current impacts.

Associated CTGCN

Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Montane Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Wetlands

Associated SGCN

Amphibians
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
American Bittern
Black Rosy-Finch
Black Tern
Black-backed Woodpecker
Black-billed Cuckoo
Black-crowned Night-Heron
Bobolink
Brewer's Sparrow
Brown Creeper
Burrowing Owl
Cassin's Finch
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Flammulated Owl
Forster's Tern
Franklin's Gull
Golden Eagle
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Green-tailed Towhee
Harlequin Duck
Lewis's Woodpecker
Loggerhead Shrike
Long-billed Curlew
Mountain Plover
Northern Goshawk
Peregrine Falcon
Pinyon Jay
Sagebrush Sparrow
Sage Thrasher
Sharp-tailed Grouse
Trumpeter Swan
Varied Thrush
Veery
White-faced Ibis
Yellow-billed Cuckoo

Mammals
Canada Lynx
Dwarf Shrew
Fringed Myotis
Great Basin Pocket Mouse
Grizzly Bear
Hoary Bat
Merriam's Shrew
Little Brown Myotis
Preble's Shrew
Pygmy Rabbit
Spotted Bat
Townsend's Big-eared Bat
Wolverine

NORTH BIG HOLE **221 miles^2**

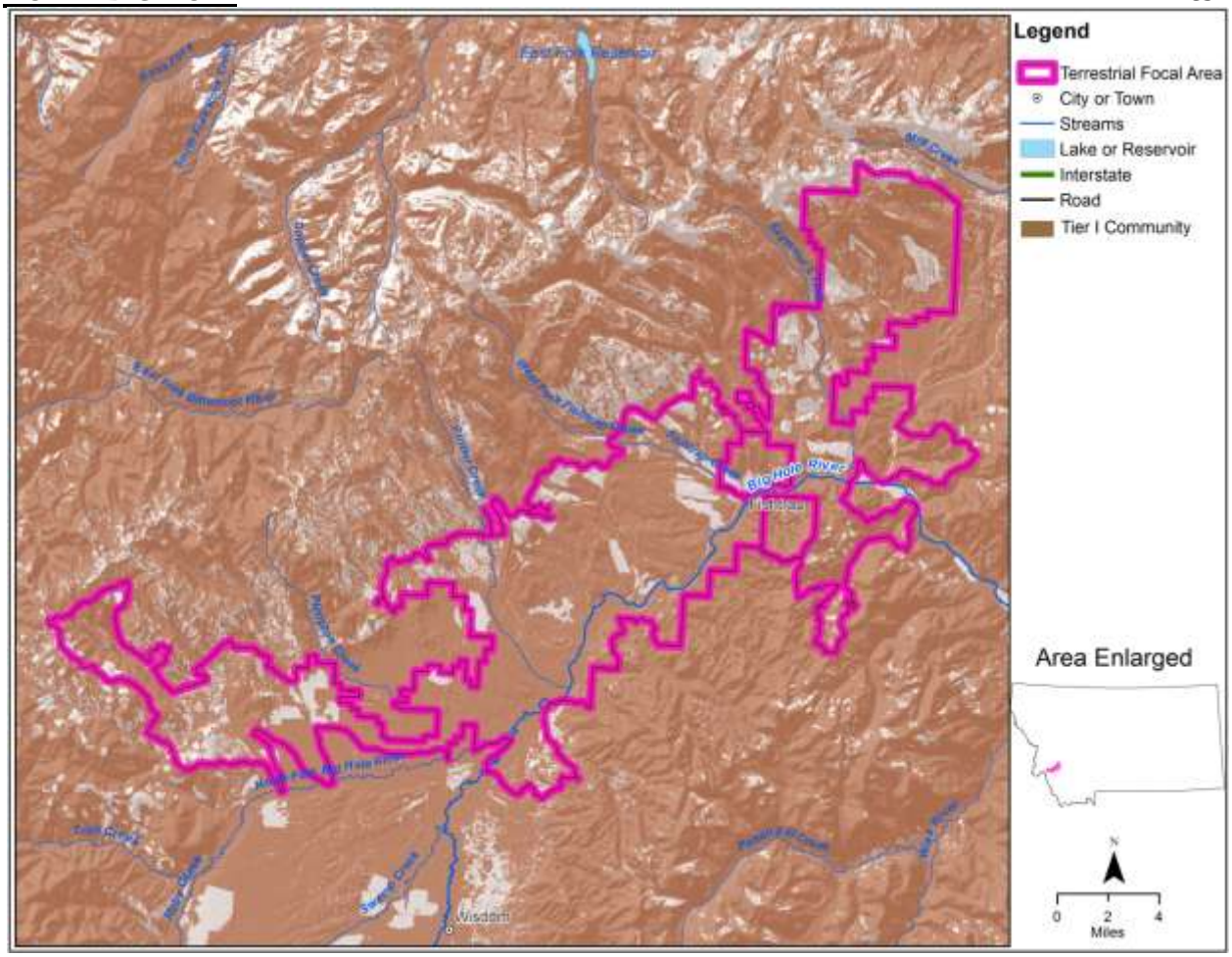

Figure 42. North Big Hole Focal Area in FWP Region 3 (Bozeman)

The North Big Hole provides connectivity and includes important areas for grizzly bears and wolverines. It is an important migration route for elk and antelope, and provides important moose habitat. There are also several greater sage-grouse leks found in this Focal Area.

This area demonstrates partnership successes with the Big Hole Grayling CCAA, and there is opportunity to forge new partnerships. There are a few conservation easements in this area, and there is potential to secure additional. There is high recreational use including fishing, hunting, and wildlife watching.

Current impacts to the area include possible impacts from recreation and certain agricultural practices such as sagebrush conversion, conversion of native grasslands, and invasive species. Future threats may include impacts from a powerline corridor if approved; other future threats are the same as current impacts.

Associated CTGCN

Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Montane Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Wetlands

Associated SGCN

Amphibians
Western Toad

Birds
American Bittern
Black Rosy-Finch
Black Swift
Black Tern
Black-backed Woodpecker
Bobolink
Brewer's Sparrow
Brown Creeper
Burrowing Owl
Cassin's Finch
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Flammulated Owl
Forster's Tern
Golden Eagle
Gray-crowned Rosy-Finch
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Green-tailed Towhee
Harlequin Duck
Lewis's Woodpecker
Long-billed Curlew
Northern Goshawk
Peregrine Falcon
Pileated Woodpecker
Sagebrush Sparrow
Sage Thrasher
Varied Thrush
Veery

Mammals
Canada Lynx
Dwarf Shrew
Fisher
Fringed Myotis
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Preble's Shrew
Pygmy Rabbit
Spotted Bat
Townsend's Big-eared Bat
Wolverine

SAGE GROUSE CORE AREA **1,529 miles^2**

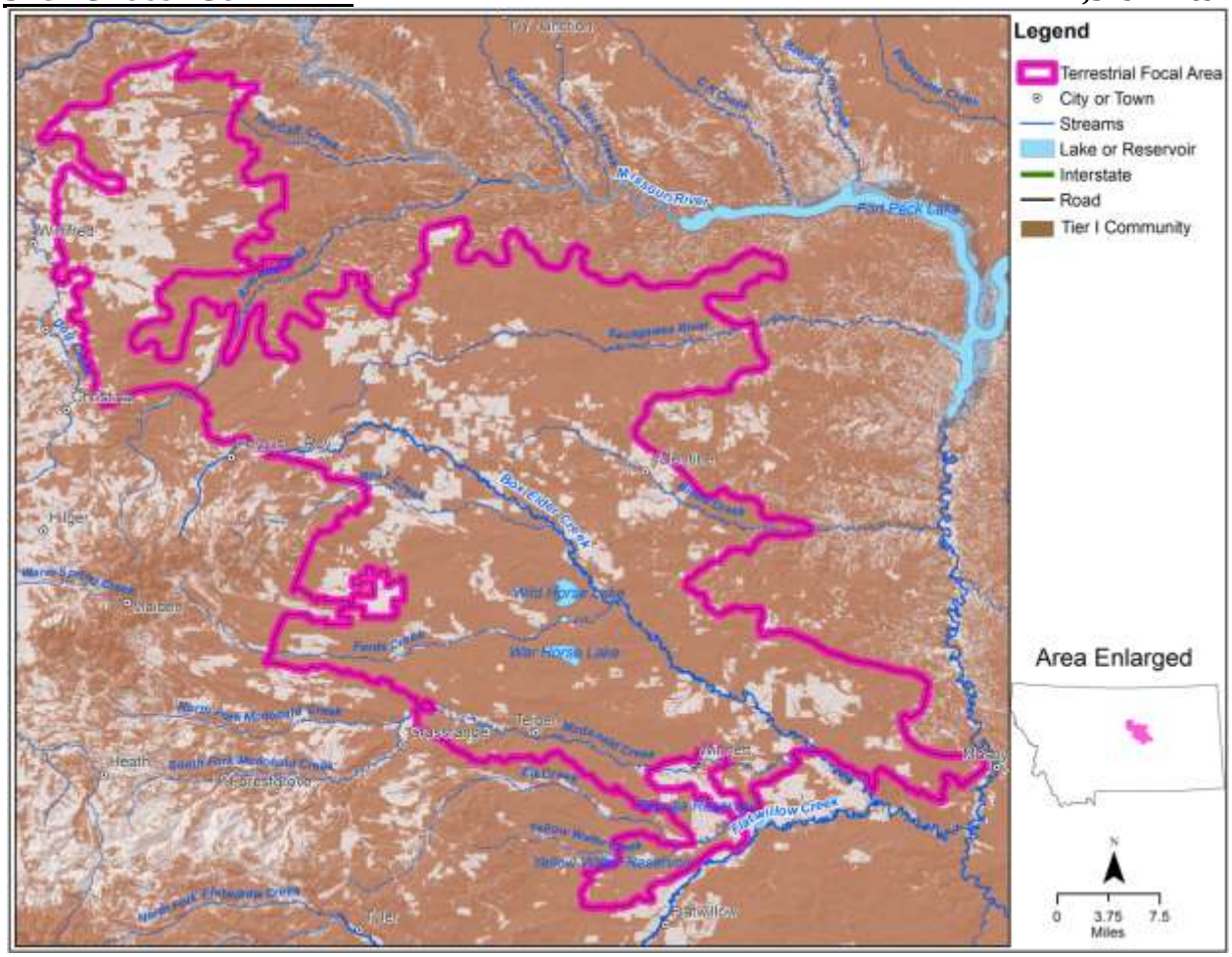

Figure 43. Sage Grouse Core Area Focal Area in FWP Region 4 (Great Falls)

This Focal Area contains one of the greater sage-grouse core areas and has large contiguous habitat. There is considerable public land (e.g., BLM) managed for multiple use, but there are limited protections on private land. There is a high potential for partnering with local landowners, NRCS, and BLM. Restoration opportunities in this area can be done with difficulty, and the cost likely is high. There is good recreational value and high use in this Focal Area.

The largest current impact to this area is sodbusting. Increased sodbusting is the number one future threat. Livestock grazing is a major land use in the area and proper management practices are critical to maintaining the area's SGCN habitat values.

Associated CTGCN

Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Lowland/Prairie Grassland
Montane Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Wetlands

Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot

Birds
American Bittern
Baird's Sparrow
Black Tern
Black-billed Cuckoo
Bobolink
Brewer's Sparrow
Burrowing Owl
Cassin's Finch
Chestnut-collared Longspur
Clark's Nutcracker
Common Tern
Ferruginous Hawk
Forster's Tern
Golden Eagle
Great Blue Heron
Greater Sage-Grouse
Green-tailed Towhee
Horned Grebe
Lewis's Woodpecker
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Mountain Plover
Northern Goshawk
Peregrine Falcon
Pinyon Jay
Red-headed Woodpecker
Sage Thrasher
Sharp-tailed Grouse
Sprague's Pipit
Veery
White-faced Ibis

Mammals
Black-tailed Prairie Dog
Dwarf Shrew
Fringed Myotis
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Swift Fox
Townsend's Big-eared Bat

Reptiles
Greater Short-horned Lizard
Milksnake
Spiny Softshell
Western Hog-nosed Snake

KEVIN RIM **134 miles^2**

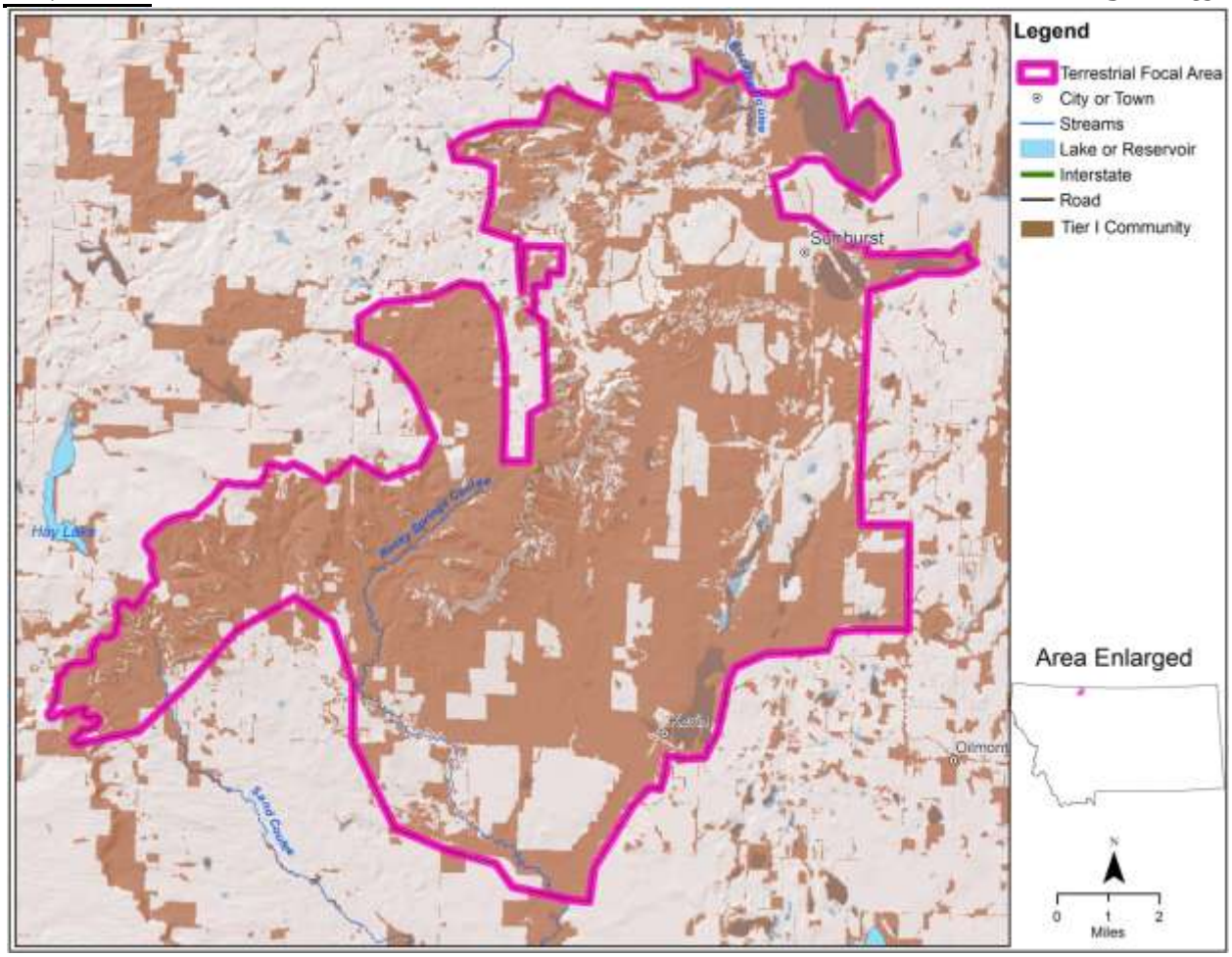

Figure 44. Kevin Rim Focal Area in FWP Region 4 (Great Falls)

Kevin Rim supports a high concentration of nesting raptors, primarily ferruginous hawks, although nine other raptor species have been documented to breed in this Focal Area. Kevin Rim has one of the highest documented raptor nest densities in the state and has been designated as a Key Raptor Area by the BLM and is recognized as an IBA by the National Audubon Society.

The recreational value of this area is good, and includes several Block Management Areas and BLM and DNRC lands. There is good opportunity to partner with private landowners.

Current impacts and potential future threats include direct and indirect habitat loss associated with wind development and oil and gas exploration and development.

Associated CTGCN

Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Lowland/Prairie Grassland
Open Water
Wetlands

Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot

Birds
Baird's Sparrow
Bobolink
Brewer's Sparrow
Burrowing Owl
Chestnut-collared Longspur
Ferruginous Hawk
Golden Eagle
Great Blue Heron
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Peregrine Falcon
Sharp-tailed Grouse
Sprague's Pipit
Veery

Mammals
Dwarf Shrew
Hoary Bat
Little Brown Myotis
Preble's Shrew
Swift Fox

Reptiles
Greater Short-horned Lizard
Western Hog-nosed Snake

COTTONWOOD TRIANGLE **770 miles^2**

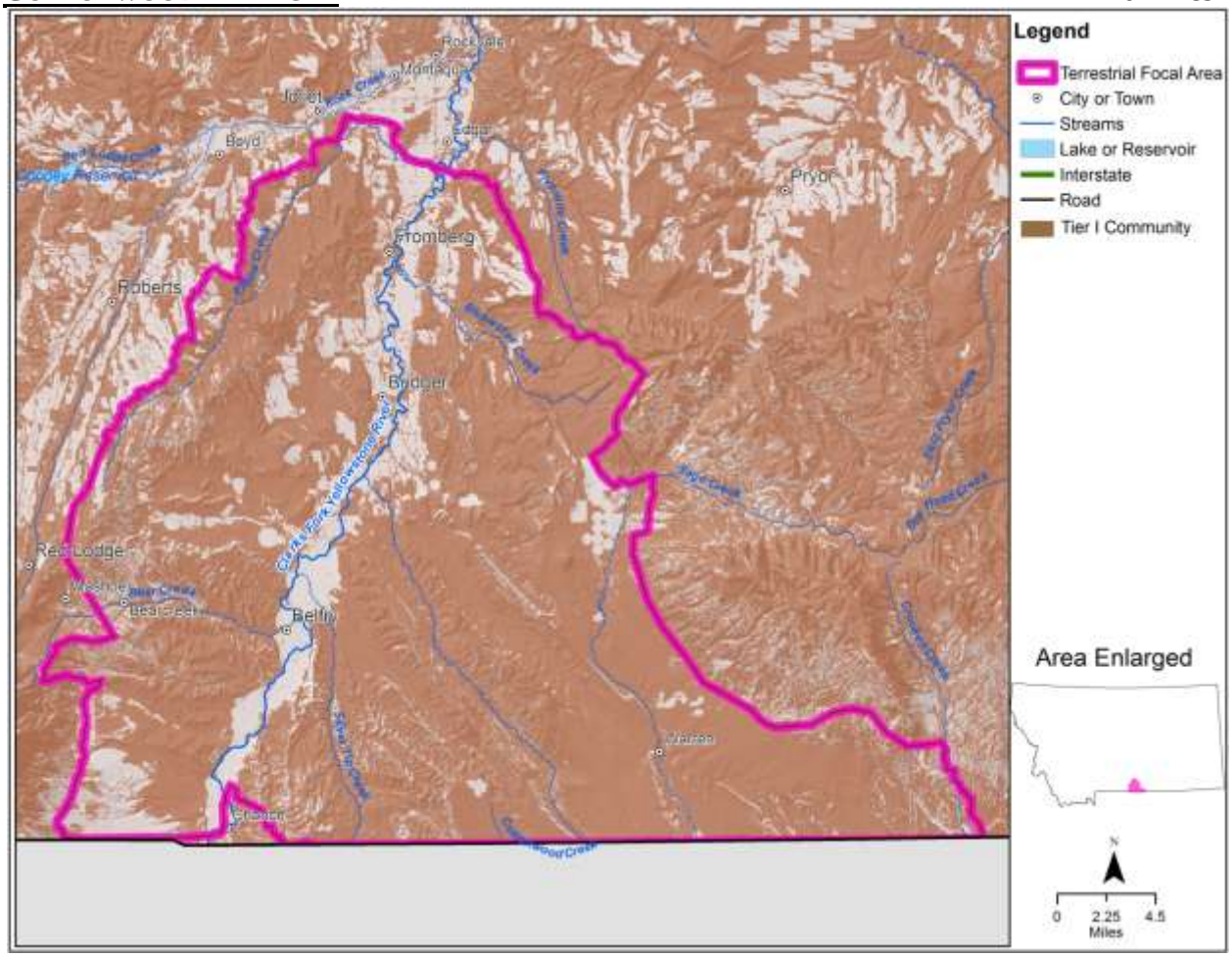

Figure 45. Cottonwood Triangle Focal Area in FWP Region 5 (Billings)

This area is unique in Montana in that it is a true desert. It is home to white-tailed prairie dogs (WTPD) which are found nowhere else in the state. This Focal Area, which is made up of contiguous habitat, includes a greater sage-grouse core area. This area also supports mule deer and antelope winter range.

Restoration opportunities exist but are difficult and come with a high cost. There is concern that another pipeline under a stream could fail, as happened in the Yellowstone River in 2011. That would impact the great and diverse recreational opportunities in the area (e.g., consumptive and non-consumptive use). The biggest impact currently is oil and gas exploration and development. Future threats are the same. In addition, coal exploration may occur and a windfarm has been proposed in the best greater sage-grouse habitat in the area.

Associated CTGCN

Conifer-dominated Forest and Woodland (xeric-mesic)
Floodplain and Riparian
Lowland/Prairie Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Scrub and Dwarf Shrubland
Wetlands

Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot

Birds
American Bittern
Baird's Sparrow
Black Rosy-Finch
Black Tern
Black-backed Woodpecker
Black-billed Cuckoo
Black-necked Stilt
Blue-gray Gnatcatcher
Bobolink
Brewer's Sparrow
Brown Creeper
Burrowing Owl
Cassin's Finch
Chestnut-collared Longspur
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Golden Eagle
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Green-tailed Towhee
Harlequin Duck
Lewis's Woodpecker
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Mountain Plover
Northern Goshawk
Peregrine Falcon
Pinyon Jay
Red-headed Woodpecker
Sagebrush Sparrow
Sage Thrasher
Sharp-tailed Grouse
Sprague's Pipit
Varied Thrush
Veery
White-faced Ibis
Yellow-billed Cuckoo

Mammals
Black-tailed Prairie Dog
Canada Lynx
Dwarf Shrew
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Spotted Bat
Swift Fox
Townsend's Big-eared Bat
White-tailed Prairie Dog
Wolverine

Reptiles
Greater Short-horned Lizard
Milksnake
Spiny Softshell
Western Hog-nosed Snake

BEARTOOTH FACE **1,168 miles^2**

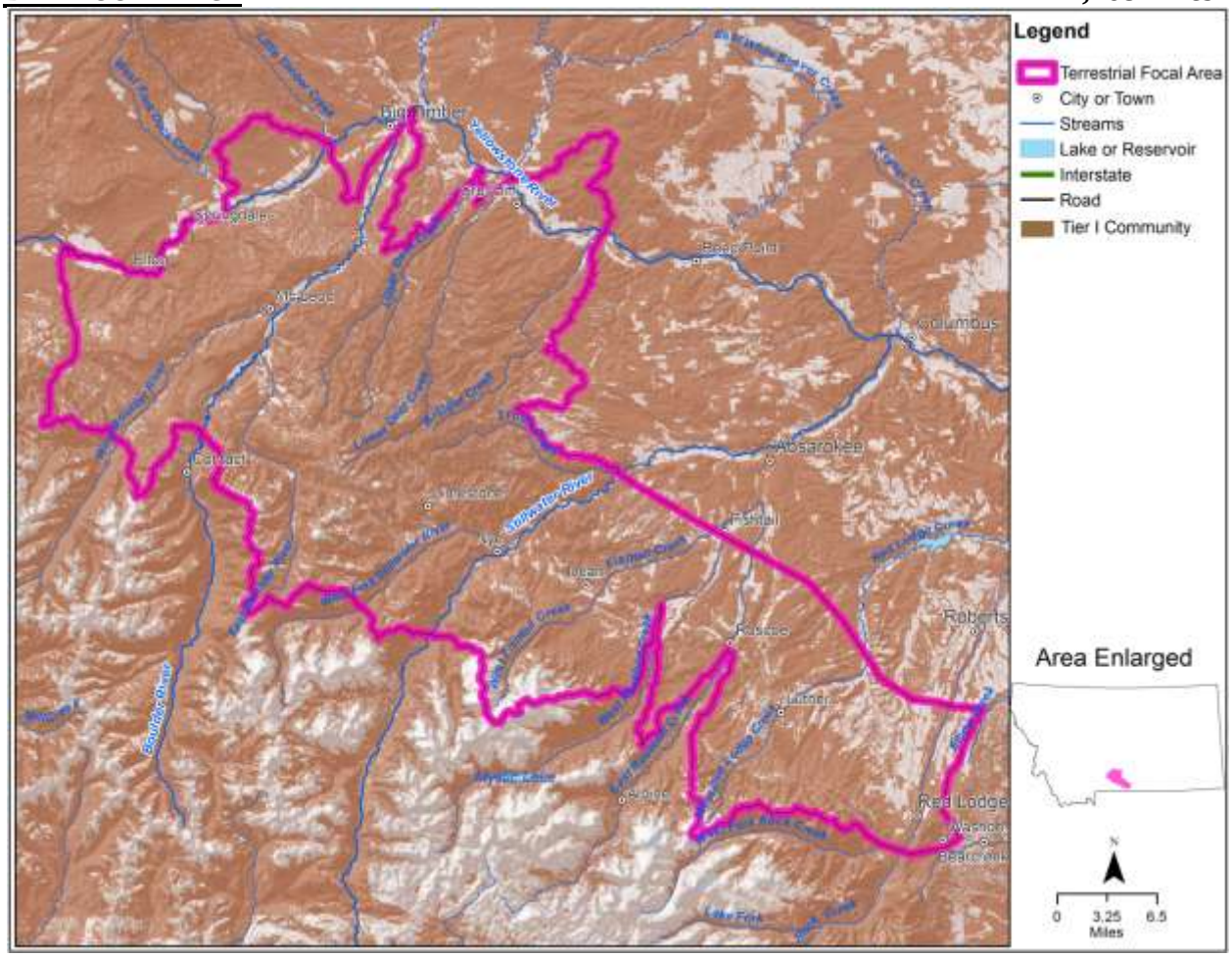

Figure 46. Beartooth Face Focal Area in FWP Region 5 (Billings)

The Beartooth Face provides a buffer to a wilderness area and has high quality winter range for deer, elk, moose, and bighorn sheep. It is comprised of large areas of contiguous habitat and has very high quality aspen communities. This area also supports grizzly bear expansion. There are many conservation easements with private landowners in this area that afford some protections.

Restoration opportunities exist for some impacts (i.e., oil and gas development) but are difficult and come with a high cost. There is concern that another pipeline under a stream could fail, as happened in the Yellowstone River in 2011. That would impact the great and diverse recreational opportunities in the area (e.g., consumptive and non-consumptive use).

The biggest impact currently is subdivision development. With the proximity to Billings, this likely will continue to be a threat. There is great oil and gas exploration and development potential, as well as wind development.

Associated CTGCN

Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Montane Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Wetlands

Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
American Bittern
Baird's Sparrow
Black Rosy-Finch
Black Tern
Black-backed Woodpecker
Black-billed Cuckoo
Bobolink
Brewer's Sparrow
Brown Creeper
Burrowing Owl
Cassin's Finch
Chestnut-collared Longspur
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Golden Eagle
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Green-tailed Towhee
Harlequin Duck
Lewis's Woodpecker
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Mountain Plover
Northern Goshawk
Peregrine Falcon
Pinyon Jay
Red-headed Woodpecker
Sagebrush Sparrow
Sage Thrasher
Sharp-tailed Grouse
Sprague's Pipit
Trumpeter Swan
Varied Thrush
Veery
White-faced Ibis
Yellow-billed Cuckoo

Mammals
Black-tailed Prairie Dog
Canada Lynx
Dwarf Shrew
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Spotted Bat
Swift Fox
Townsend's Big-eared Bat
White-tailed Prairie Dog
Wolverine

Reptiles
Greater Short-horned Lizard
Milksnake
Spiny Softshell
Western Hog-nosed Snake

SAGEBRUSH/GRASSLAND **2,947 miles^2**

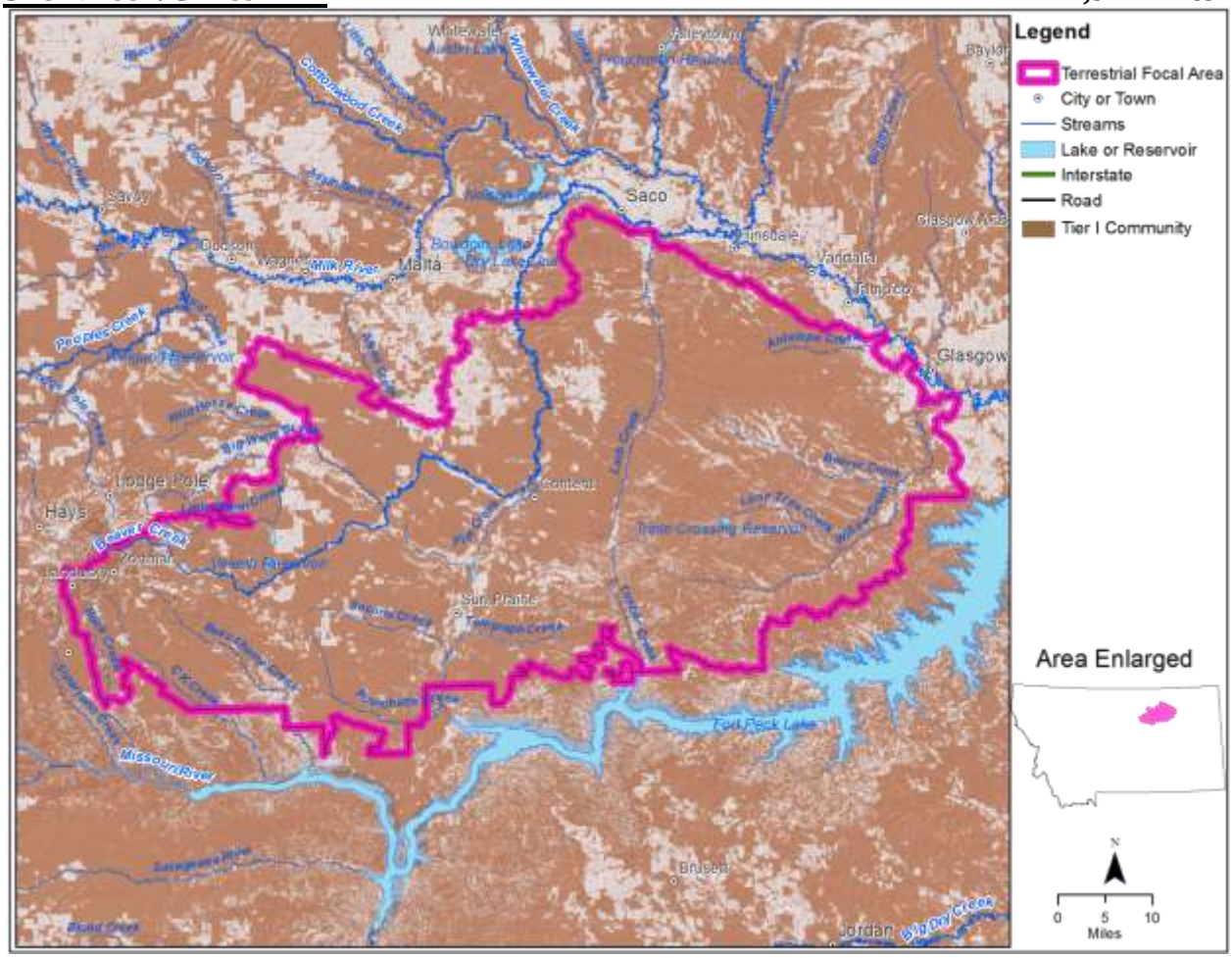

Figure 47. Sagebrush/Grassland Focal Area in FWP Region 6 (Glasgow)

This area includes a greater sage-grouse core area and supports many sagebrush and grassland obligate SGCN. The Charlie M. Russell NWR borders this Focal Area on the south side. There are several existing partnerships with NGOs including the World Wildlife Fund, American Prairie Reserve, and The Nature Conservancy. There is high recreational value in this area including hunting and wildlife viewing.

Restoration opportunities exist for most existing impacts (e.g., oil and gas development, CRP loss) to this area, as the impacts are somewhat reversible. Although once native prairie is broken, it can never be restored completely back to its original condition. If current impacts are not addressed, they will continue to be a threat in the future along with the potential for urban development.

Associated CTGCN

Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Lowland/Prairie Grassland
Montane Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Wetlands

Associated SGCN

Amphibians

Great Plains Toad
Northern Leopard Frog
Plains Spadefoot

Birds

American Bittern
American White Pelican
Baird's Sparrow
Black Tern
Black-billed Cuckoo
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Brewer's Sparrow
Burrowing Owl
Caspian Tern
Cassin's Finch
Chestnut-collared Longspur
Clark's Grebe
Clark's Nutcracker
Common Tern
Ferruginous Hawk
Forster's Tern
Franklin's Gull
Golden Eagle
Great Blue Heron
Greater Sage-Grouse
Green-tailed Towhee
Horned Grebe
Least Tern
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Mountain Plover
Peregrine Falcon
Pinyon Jay
Piping Plover
Red-headed Woodpecker
Sage Thrasher
Sharp-tailed Grouse
Sprague's Pipit
Veery
White-faced Ibis

Mammals

Black-tailed Prairie Dog
Dwarf Shrew
Fringed Myotis
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Preble's Shrew
Swift Fox
Townsend's Big-eared Bat

Reptiles

Greater Short-horned Lizard
Milksnake
Spiny Softshell
Western Hog-nosed Snake

MILK RIVER **1,350 miles^2**

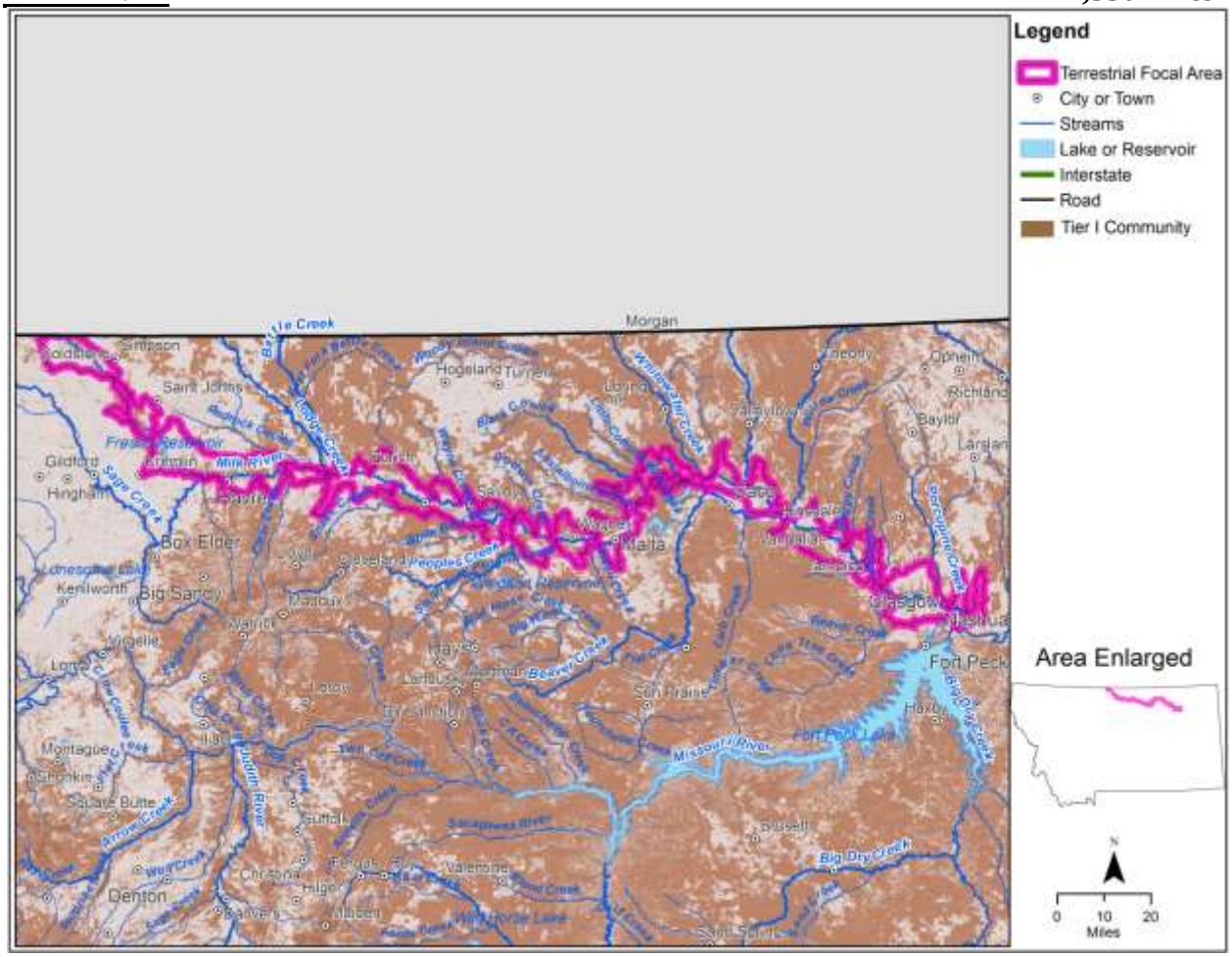

Figure 48. Milk River Focal Area in FWP Region 6 (Glasgow)

This terrestrial Focal Area overlaps almost entirely with the aquatic Milk River Focal Area. There is high quality riparian habitat in this area that supports many SGCN. Hunting, fishing, and wildlife viewing are important recreational activities in this area. There are some existing partnerships (e.g., Pheasants Forever, National Wild Turkey Federation), and there is opportunity to develop more.

Current impacts include oil and gas development, some urban development, and incompatible farming practices. Fortunately very few of these impacts are irreversible. Future threats to this area are the same as current impacts if not addressed, in addition to the likely loss of acres enrolled in CRP.

Associated CTGCN

Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Lowland/Prairie Grassland
Montane Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Wetlands

Associated SGCN

Amphibians

Great Plains Toad
Northern Leopard Frog
Plains Spadefoot

Birds

American Bittern
American White Pelican
Baird's Sparrow
Black Tern
Black-billed Cuckoo
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Brewer's Sparrow
Burrowing Owl
Caspian Tern
Chestnut-collared Longspur
Clark's Grebe
Clark's Nutcracker
Common Tern
Ferruginous Hawk
Forster's Tern
Franklin's Gull
Golden Eagle
Great Blue Heron
Greater Sage-Grouse
Green-tailed Towhee
Horned Grebe
Least Tern
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Mountain Plover
Northern Goshawk
Peregrine Falcon
Piping Plover
Red-headed Woodpecker
Sage Thrasher
Sharp-tailed Grouse
Sprague's Pipit
Veery
White-faced Ibis

Mammals

Black-tailed Prairie Dog
Dwarf Shrew
Fringed Myotis
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Preble's Shrew
Pygmy Shrew
Swift Fox
Townsend's Big-eared Bat

Reptiles

Greater Short-horned Lizard
Milksnake
Western Hog-nosed Snake

SAGEBRUSH OBLIGATES **2,689 miles^2**

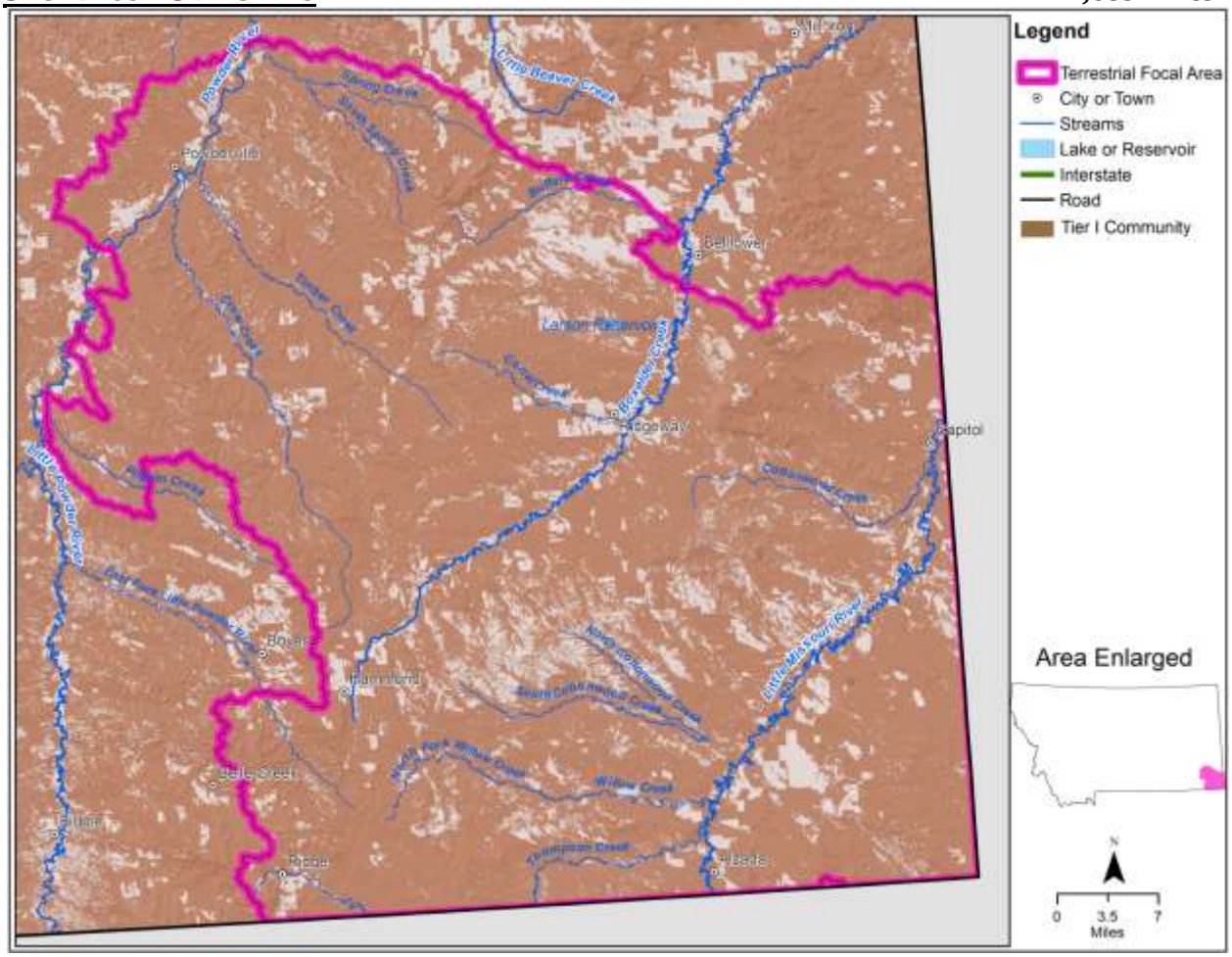

Figure 49. Sagebrush Obligates Focal Area in FWP Region 7 (Miles City)

This area has been identified as an NRCS conservation priority area and it provides critical mule deer and antelope habitat. It also includes a greater sage-grouse core area and supports many sagebrush and grassland obligate SGCN. There is a great deal of habitat diversity in this Focal Area, and creeks provide corridors and connectivity. At times in late summer, the only surface water available for wildlife are the creeks in this Focal Area.

This area supports a large, intact native range that has high conservation value and restoration opportunities. The Focal Area contains several large, contiguous pieces of public land (e.g., BLM) managed for multiple use, but there are limited protections on private land. The recreational value in this area is exceptional, and use is high for both consumptive and non-consumptive users. Existing partnerships in the area are extensive and include state and federal agencies, private landowners, and many NGOs.

Current impacts in this area are sodbusting and incompatible grazing practices. The future threats include current impacts in addition to betonite development, oil and gas exploration and development, and pipeline construction.

Associated CTGCN

Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Lowland/Prairie Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Wetlands

Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot

Birds
Baird's Sparrow
Black Tern
Black-backed Woodpecker
Black-billed Cuckoo
Bobolink
Brewer's Sparrow
Brown Creeper
Burrowing Owl
Chestnut-collared Longspur
Clark's Nutcracker
Ferruginous Hawk
Golden Eagle
Great Blue Heron
Greater Sage-Grouse
Green-tailed Towhee
Lewis's Woodpecker
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Mountain Plover
Northern Goshawk
Peregrine Falcon
Pinyon Jay
Red-headed Woodpecker
Sage Thrasher
Sharp-tailed Grouse
Sprague's Pipit
Veery
Yellow-billed Cuckoo

Mammals
Black-tailed Prairie Dog
Dwarf Shrew
Fringed Myotis
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Swift Fox
Townsend's Big-eared Bat

Reptiles
Greater Short-horned Lizard
Milksnake
Snapping Turtle
Spiny Softshell
Western Hog-nosed Snake

INGOMAR **3,983 miles^2**

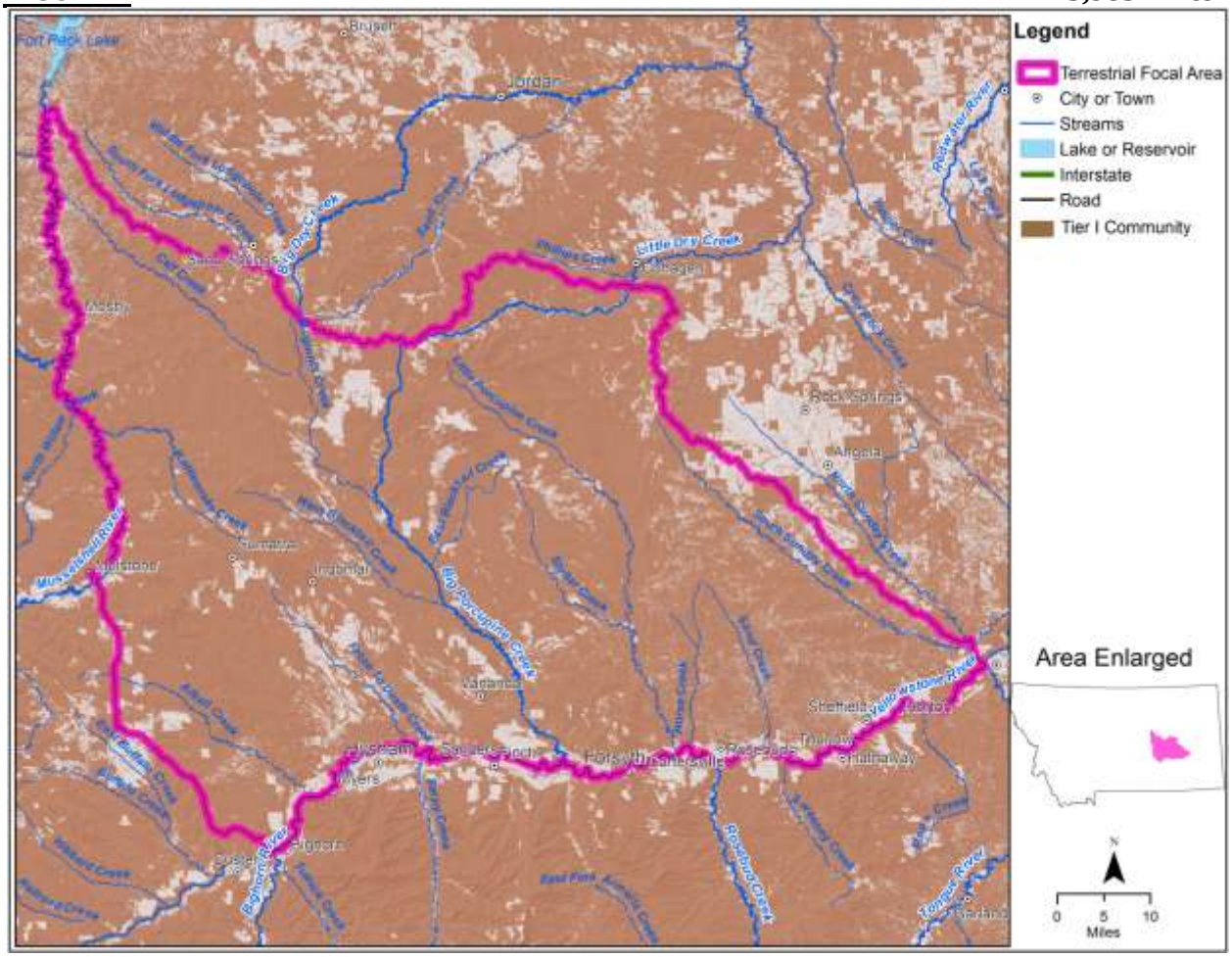

Figure 50. Ingomar Focal Area in FWP Region 7 (Miles City)

This area has been identified as an NRCS conservation priority area and it provides critical mule deer and antelope habitat. This area includes a greater sage-grouse core area and supports many sagebrush and grassland obligate SGCN. There is a great deal of habitat diversity in this Focal Area, and creeks provide corridors and connectivity. At times in late summer, the only surface water available for wildlife are the creeks in this Focal Area.

This area supports a large, intact native range that has high conservation value and restoration opportunities. The recreational value in this area is exceptional, and use is high for both consumptive and non-consumptive users. Existing partnerships in the area are extensive and include state and federal agencies, private landowners, and many NGOs.

Current impacts in this area are sodbusting and incompatible grazing practices. The future threats include current impacts in addition to oil and gas exploration and development and pipeline construction.

Associated CTGCN

Conifer-dominated Forest and Woodland (xeric-mesic)
Deciduous Dominated Forest and Woodland
Floodplain and Riparian
Lowland/Prairie Grassland
Montane Grassland
Open Water
Sagebrush Steppe & Sagebrush-Dominated Shrubland
Wetlands

Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot

Birds
American Bittern
Baird's Sparrow
Black Tern
Black-billed Cuckoo
Bobolink
Brewer's Sparrow
Burrowing Owl
Cassin's Finch
Chestnut-collared Longspur
Clark's Nutcracker
Common Tern
Ferruginous Hawk
Forster's Tern
Golden Eagle
Great Blue Heron
Greater Sage-Grouse
Green-tailed Towhee
Least Tern
Lewis's Woodpecker
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Mountain Plover
Northern Goshawk
Peregrine Falcon
Pinyon Jay
Red-headed Woodpecker
Sage Thrasher
Sharp-tailed Grouse
Sprague's Pipit
Veery
White-faced Ibis
Yellow-billed Cuckoo

Mammals
Black-tailed Prairie Dog
Dwarf Shrew
Fringed Myotis
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Spotted Bat
Swift Fox
Townsend's Big-eared Bat

Reptiles
Greater Short-horned Lizard
Milksnake
Snapping Turtle
Spiny Softshell
Western Hog-nosed Snake

SPECIES OF GREATEST CONSERVATION NEED

All of the information in this section is taken directly from the CFWCS (FWP 2006), Montana Field Guide (MNHP and FWP 2013a), the SOC list (MNHP and FWP 2013b), and recommendations from the SWAP Technical Teams (personal communications). Any additional citations are listed.

There are 128 SGCN (Appendix N) identified in this SWAP which can be considered for SWG funding, but conservation actions only were developed for the 47 having a State Rank of S1 or S2. The latter includes five amphibians, 14 birds, 16 fish, eight mammals, one mussel, and three reptiles. While these 47 species were chosen to focus conservation efforts, it is not implied that projects that address other SGCN (i.e., species with a State Rank of S3) are excluded. Because the conservation actions identified in the Community Types of Greatest Conservation Need section take a landscape or habitat approach, many of the SGCN not addressed in this section likely will benefit from the actions identified in the aforementioned section. In addition, no conservation action identified in this section is more or less important than any other, as successful conservation of the species in greatest need will require addressing all of these concerns over time.

The maps in this section were developed from the Montana Field Guide (MNHP and FWP 2013a) and the Point Observation Database. Please note that some species may have no or few observations identified. This may not be a true representation of their distribution within Montana as the only available records may be from incidental observations. Structured surveys have not been conducted for all SGCN (see Species of Greatest Inventory Need) In addition, recent species observations (< 10 years) are displayed separately from older observations (> 10 years).

INVERTEBRATES

The number of invertebrates in Montana is unknown, but likely to be in the thousands. Eighty-five are considered SOC (MNHP and FWP 2013b). This SWAP only reviewed two invertebrate species groups for inclusion consideration, crayfish and mussels. 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. A list of invertebrate SOC can be found in Appendix O.

Mussels

Western Pearlshell (*Margaritifera falcata*) State Rank: S2
Global Rank: G4G5

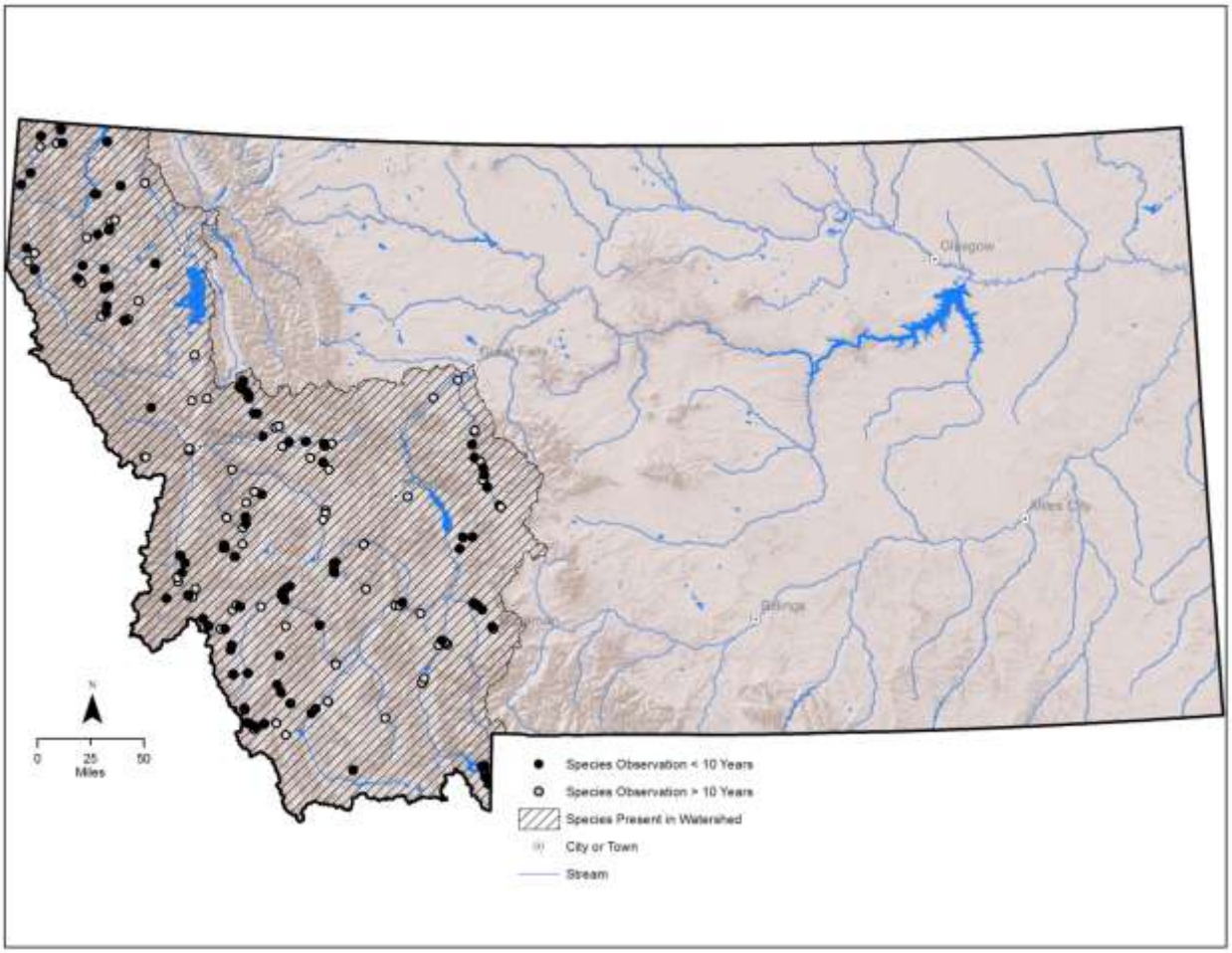

Figure 51. Montana range and observations of the western pearlshell

Habitat

The species is found in cool and cold running streams that generally have a low to moderate gradient and are wider than 6.6 feet; preferable habitat is stable sand or gravel substrates. It is found in hard as well as soft water. In large Idaho river systems (Salmon and Clearwater River Canyons), the western pearlshell attains maximum density and age in river reaches where large boulders structurally stabilize cobbles and interstitial gravels. Boulders tend to prevent significant bed scour during major floods, and these boulder-sheltered mussel beds, although rare, may be critical for population recruitment elsewhere within the river, especially after periodic flood scour of less protected mussel habitat. In Idaho's Salmon and Snake River canyon, where reaches are aggrading with sand and gravel, the western pearlshell is being replaced by *Gonidea angulata*.

The normal fish hosts in the area are probably the *Oncorhynchus* species (e.g., Chinook salmon, WCT, steelhead), but *Salmo* and *Salvelinus* and even *Rhinicthys* and *Catostomus* (dace and suckers) are reported to be suitable. The western pearlshell likely crossed the divide with the

WCT, which is the native salmonid of the upper Missouri River drainage. This species occurs in sand, gravel, and even between cobbles and boulders.

Management

The western pearlshell became a Sensitive Species for the USFS in 2010, and has been ranked at risk (S2) in Montana since 2008. Montana's populations have shown dramatic declines and were downgraded to S2 from S2S4 after more intensive sampling in 2007 and 2008 documented few viable populations in the state (Stagliano 2010). This species is widespread in geographic areas, but is declining in terms of area occupied and the number of sites with viable individuals; populations showing repeated reproduction (at least several age classes) are now the exception rather than the rule (Frest and Johannes 1995, Stagliano 2010). Individuals of this species can be quite long-lived and populations could exist undetected at low levels for many years without any reproduction.

Management Plan

None for western pearlshell, but documents with identified actions and strategies exist for host fish WCT, YCT, and bull trout. In addition, a *Montana Statewide Fisheries Management Plan* (FWP 2013a) was developed, and actions identified within could help western pearlshells persist.

Western Pearlshell Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Habitat degradation and fragmentation (e.g., dams, stream channelization, diversions, dredging, and dewatering) Stream deterioration because of high sediment loads	Habitat degradation and fragmentation (e.g., dams, stream channelization, diversions, dredging, and dewatering) Stream deterioration because of high sediment loads	Support land use practices that encourage minimizing sedimentation from runoff (e.g., stream setbacks) Restoration of stream channels, streambanks, riparian areas to a condition that simulates their natural form and function
No management plan	No management plan	Develop management plan or incorporate species recommendations into other plans
Point and nonpoint source pollution Reduced dissolved oxygen content in water	Point and nonpoint source pollution Reduced dissolved oxygen content in water	Enforcement of regulations that address the dumping of pollutants into waterways Work with agencies, organizations and the public to identify point source pollution that reduces dissolved oxygen contents in water
Threats to host fish also jeopardize mussel survival	Threats to host fish also jeopardize mussel survival	Restore connectivity of habitat and manage for healthy populations of native fish including cutthroat trout and bull trout

Current Impacts	Future Threats	Conservation Actions
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Encourage forest management practices that maintain healthy canopy cover over streams to stabilize temperature Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary
	Invasive mussels, specifically zebra and quagga	Follow guidance in *Montana's Aquatic Nuisance Species Management Plan* (Montana ANS Technical Committee 2002) and updates or revisions to the plan

VERTEBRATES

There are 528 vertebrate species that have been documented in Montana, of which 485 are native. Of the native species, there are four that have been extirpated and 195 are migratory and do not live in Montana year round. One hundred and forty-five accidental or rare visitors to Montana (all birds) were not included in the above numbers.

As of 20 May 2014, 127 vertebrate SGCN were identified, and of those 46 have a state rank of S1 or S2. Conservation actions were developed only for those 46 SGCN. Conservation actions may be better focused outside of Montana for some SGCN, if the majority of their range exists outside of Montana's borders (e.g., blue-gray gnatcatcher, northern short-tailed shrew).

There are 10 species on the SGCN list that are considered to be SGIN as well. These species may be on the SGCN list because their Montana distribution, status, and threats are unknown. If a species below is identified as a SGIN, it is indicated under the common and scientific names.

Amphibians

Idaho Giant Salamander (*Dicamptodon aterrimus*) State Rank: S2

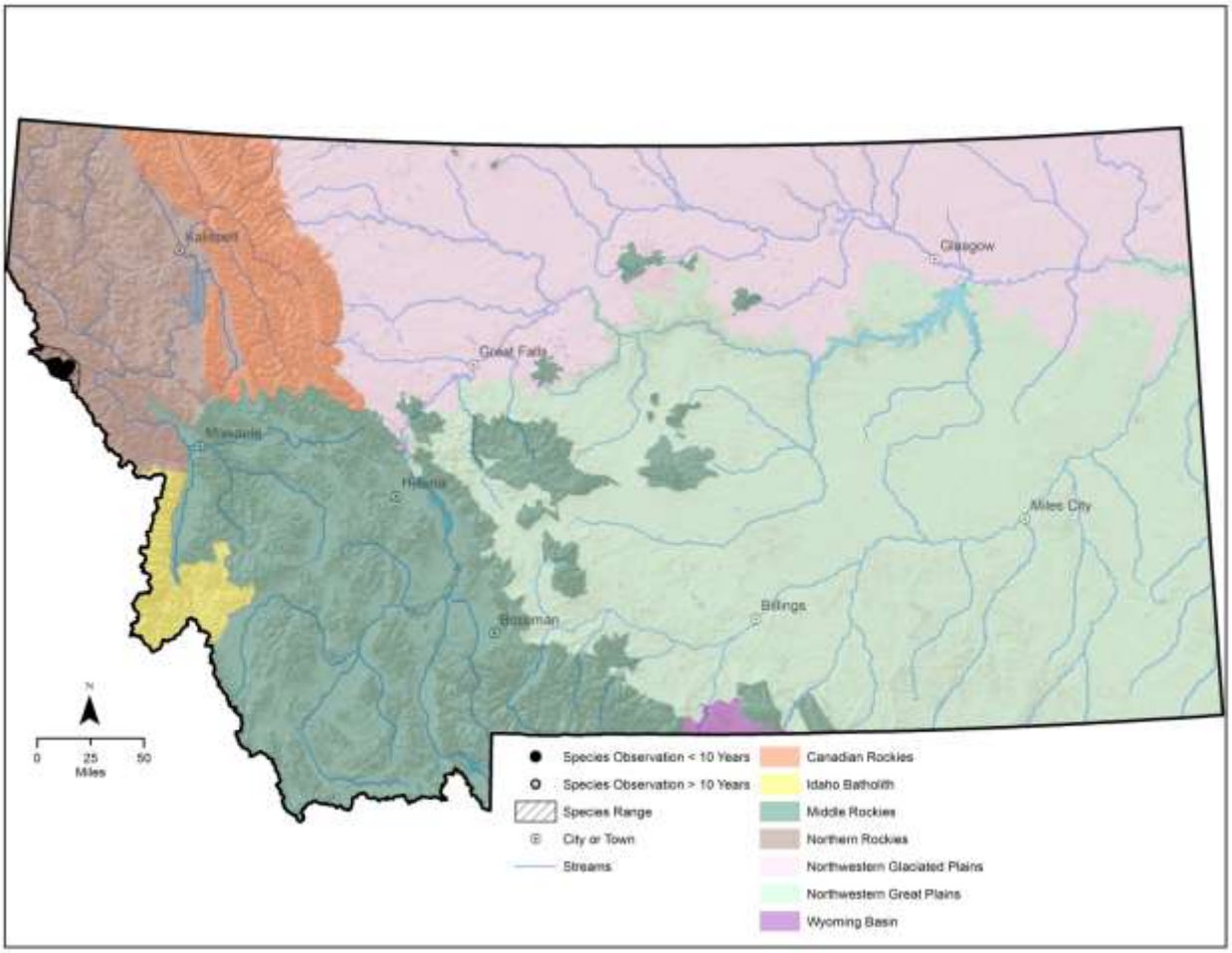

Figure 52. Montana range and observations of the Idaho giant salamander

Habitat

This species is known to occur up to 7,100 feet in elevation (Nussbaum et al. 1983). Transformed adults, although seldom seen, inhabit moist coniferous forests where they may be found under logs, bark, or rocks. They are most active on warm, rainy nights. Larvae are usually found in swift, cold mountain streams, but may occasionally be found in lakes or ponds (Reichel and Flath 1995).

Management

Potential threats for the species across its global range probably apply to Montana populations as well. Population declines or extinctions have not yet been documented, in part because the species was documented in Montana only once prior to 2005. All records are from headwater streams and lake outlets in Mineral County. The species range likely has been reduced during the last century from logging of mature and old-growth forest types, wildland fire, road building, and placer mining. Routine monitoring of known populations should be conducted to identify threats to each, as well as to determine their continued viability. Additional stream surveys are desirable

to determine connectivity with adjacent Idaho populations, especially between Thompson Falls and Lolo Pass (Maxell et al. 2009).

Management Plan

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Idaho Giant Salamander Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Disease and parasites	Disease and parasites	Implement and promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004)
Incompatible forest management practices	Incompatible forest management practices	Work with landowners and land management agencies to limit activities that may be detrimental to this species
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands
Restricted mobility coupled with increasing habitat fragmentation makes this species susceptible to local extirpation	Restricted mobility coupled with increasing habitat fragmentation makes this species susceptible to local extirpation	Conduct surveys of potential habitats for the Idaho giant salamander Replace culverts with bridges when possible Work with Idaho to maintain connectivity with populations across the state line Work with private landowners and land management agencies to conserve habitat through proper management of development, logging, and chemical applications

Current Impacts	Future Threats	Conservation Actions
Road construction	Road construction	Minimize road construction upstream or within 300 feet of known salamander sites Survey drainages for salamanders or habitat prior to new road construction
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations
	Mining	Keep new mining tailings out of drainages Reclaim streams impacted by dredge mining Work with companies to minimize mining impacts in occupied streams
	Non-native species	Coordinate closely with fisheries conservation efforts in these areas Monitor streams for non-native species, and install barriers if feasible to prevent spread into headwater areas

Coeur d'Alene Salamander (*Plethodon idahoensis*) State Rank: S2
Species of Greatest Inventory Need

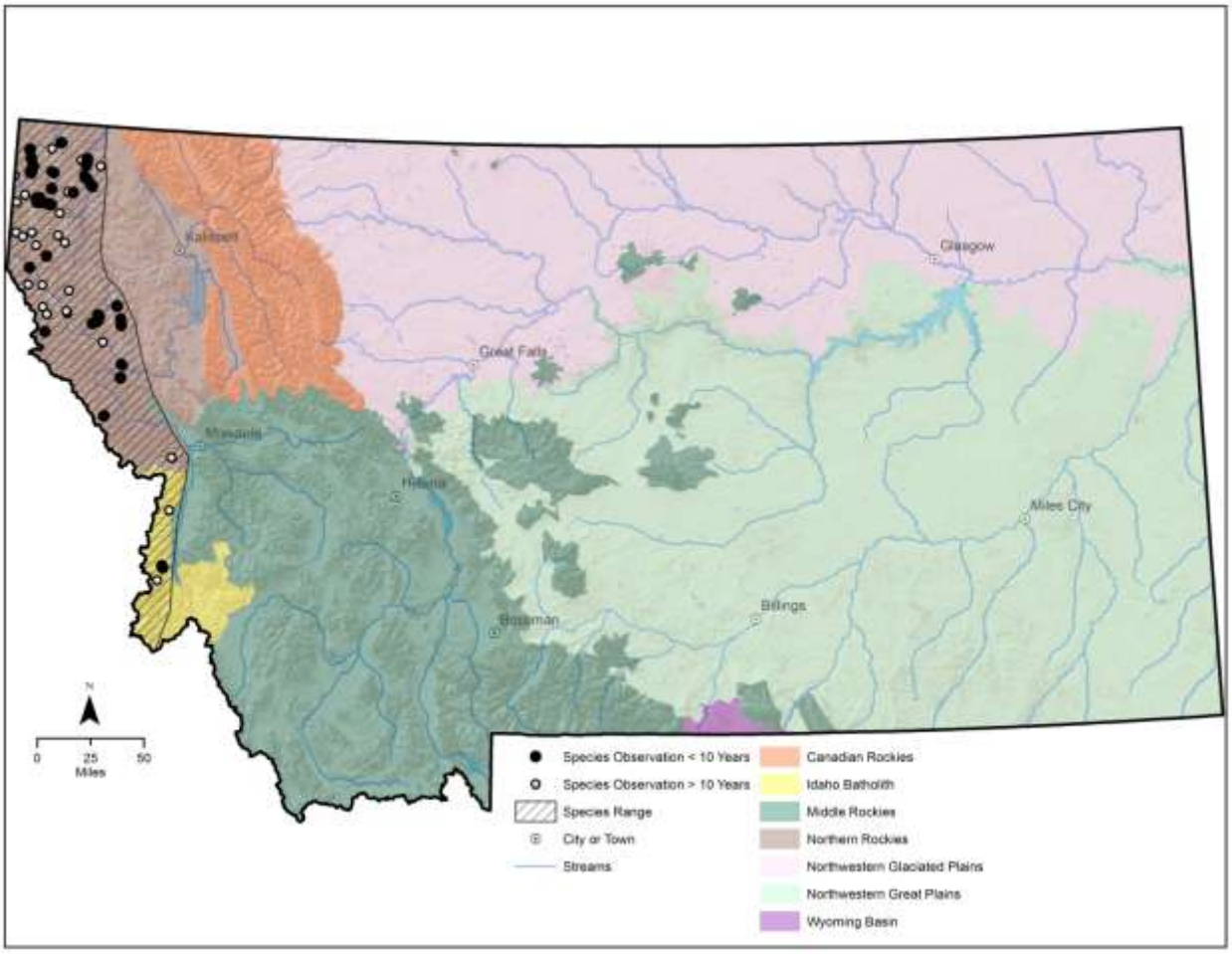

Figure 53. Montana range and observations of the Coeur d'Alene salamander

Habitat

The habitat for Coeur d'Alene salamanders includes the three major habitat categories: springs and seeps, waterfall spray zones, and stream edges (Wilson et al. 1988; Werner and Reichel 1994; Boundy 2001; Maxell 2002). Specific primary habitats are seeps and streamside talus, but they also inhabit talus far from free water (deep talus mixed with moist soil on well-shaded north-facing slopes). Coeur d'Alene salamander occurrences are generally located in coniferous forests, but are not restricted to a particular overstory species or aspect (Groves 1988, Groves et al. 1996). In wet weather, they are also found in leaf litter and under bark and logs in coniferous forests.

All plethodontid salamanders respire through their skin; terrestrial species lose water to the environment through evaporation and are therefore restricted to cool, damp environments. Coeur d'Alene salamanders are closely tied to water and are considered among the most aquatic plethodontids (Brodie and Storm 1970). Because they may live in the harshest climate of any northwestern plethodontid (Nussbaum et al. 1983), they are highly dependent on the thermal and hydrologic stability provided by wet habitats in otherwise inhospitable surroundings.

Sites occupied by Coeur d'Alene salamanders in Montana have fractured rock formations present, and nearby habitats are typically forested (Reichel and Flath 1995). Foraging areas include seepage areas and splash zones with high humidity, high substrate moisture, and relatively high temperatures (Wilson and Larsen 1988). Shelter is provided by deep bedrock fractures or in talus habitat (Wilson and Larsen 1988). Montana populations are found primarily in talus areas along splash zones of creeks, or with seeps running through (Teberg 1963, 1965; Wilson and Larsen 1988). Idaho and Montana populations breed in both spring and fall, although most eggs usually are laid in the spring. Eggs are laid in moist, concealed places on land (Stebbins 1985) far down in the rocks (Werner and Reichel 1994).

Management

Potential threats for the species across its global range also apply to Montana populations, but population declines or extinctions have not been documented here. Some populations continue to be vulnerable to highway construction activity, and most populations occur at elevations and in forest types where timber harvest is a common activity. Routine monitoring (Groves et al. 1996) of known populations should be conducted to identify threats to each, as well as to determine their continued viability.

Management Plan

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Coeur d'Alene Salamander Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor Outdated survey		Conduct monitoring program to establish long-term trends of abundance and distribution of populations Routinely monitor known populations
Disease and parasites	Disease and parasites	Implement and promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004)
Incompatible forest management practices	Incompatible forest management practices	Work with landowners and land management agencies to limit activities that may be detrimental to this species
Mining	Mining	Keep new mining tailings out of drainages Reclaim streams impacted by dredge mining

Current Impacts	Future Threats	Conservation Actions
		Work with companies to minimize mining impacts in occupied streams
Non-native species	Non-native species	Avoid stocking non-native fish in nearby waters Coordinate closely with fisheries conservation efforts in these areas
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands
Restricted mobility coupled with increasing habitat fragmentation makes this species susceptible to local extirpation	Restricted mobility coupled with increasing habitat fragmentation makes this species susceptible to local extirpation	Conduct surveys of potential habitats for the Coeur d'Alene salamander Replace culverts with bridges when possible Work with private landowners and land management agencies to conserve habitat through proper management of development, logging, and chemical applications
Road construction	Road construction	Minimize road construction upstream or within 300 feet of known salamander sites Survey drainages for salamanders or habitat prior to new road construction
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

Northern Leopard Frog (*Rana pipiens*) State Rank: S1, S4

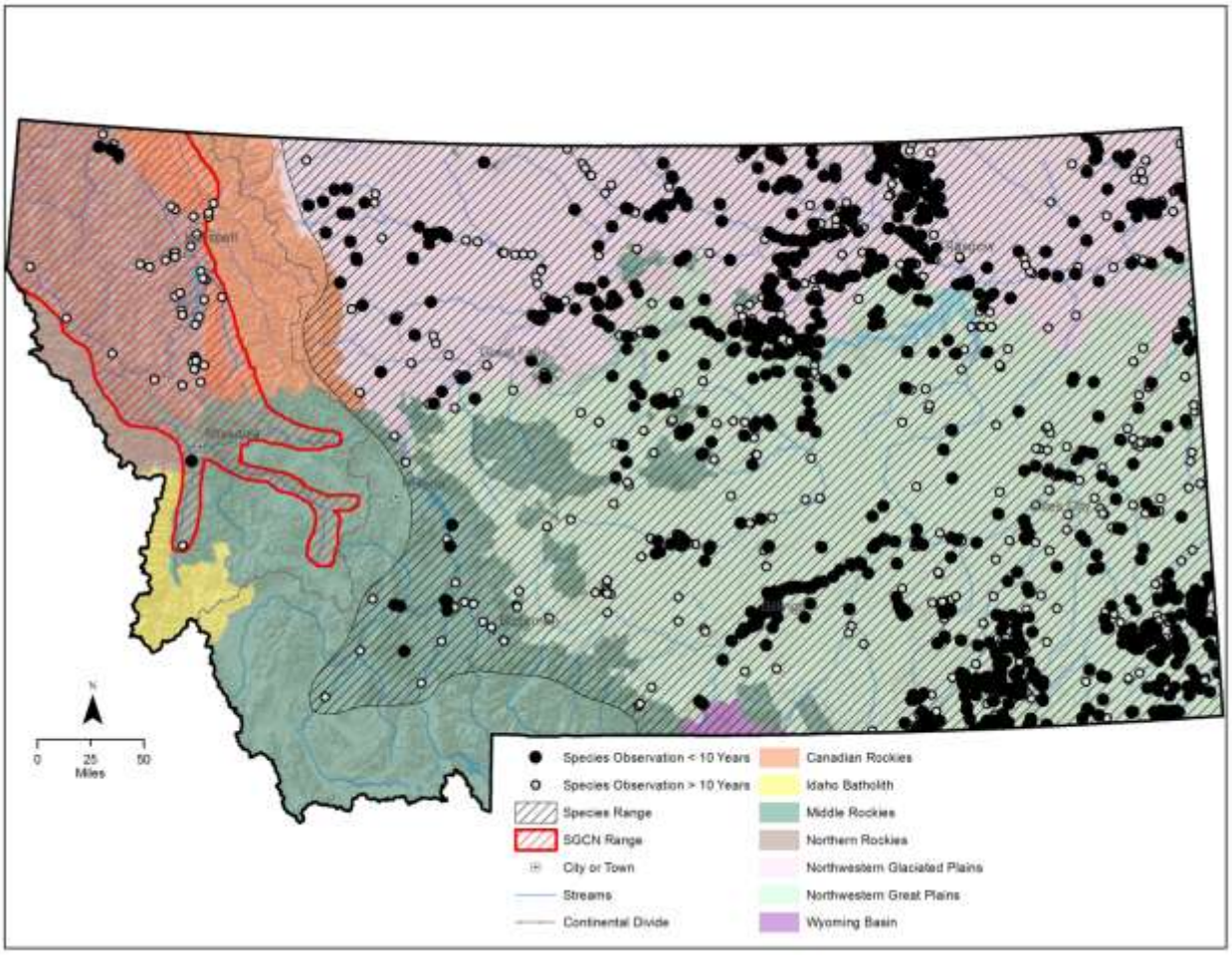

Figure 54. Montana range and observations of the northern leopard frog

Habitat

Habitats used by northern leopard frogs in Montana include low-elevation and valley bottom ponds, spillway ponds, beaver ponds, stock reservoirs, lakes, creeks, pools in intermittent streams, warm water springs, potholes, and marshes (Brunson and Demaree 1951; Mosimann and Rabb 1952; Black 1969; Miller 1978; Dood 1980; Reichel 1995; Hendricks and Reichel 1996; Hendricks 1999).

Northern leopard frogs require a mosaic of habitats to meet annual requirements of all life stages. They occupy a variety of wetland habitats of relatively fresh water with moderate salinity, including springs, slow streams, marshes, bogs, ponds, canals, floodplains, beaver ponds, reservoirs, and lakes, usually in permanent water with rooted aquatic vegetation. Adults and juveniles commonly feed in open or semi-open wet meadows and fields with shorter vegetation, usually near the margins of water bodies where there is permanent water and growth of cattails or other aquatic vegetation, yet they may forage far from water in damp meadows (Stebbins 1985). They seek cover underwater and seem to avoid denser vegetation.

Management
Populations east of the Continental Divide have a state rank of S4 and therefore are not a SGCN and are not addressed in this SWAP. Only the populations west of the Continental Divide that are SGCN with a state rank of S1 are included in this SWAP.

No special management needs are currently recognized for populations in eastern Montana. Any populations discovered in the western region should be reported to the native species biologist of FWP or the program zoologist of MNHP.

Management Plan
Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Northern Leopard Frog Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Disease and parasites	Disease and parasites	Implement and promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004)
Global change (climatic and atmospheric changes such as increased UV-B radiation, pollution, acid rain, and disease)	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Begin monitoring program to establish long-term trends of abundance and distribution of populations Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary
Loss of wetlands and hydrological regimes	Loss of wetlands and hydrological regimes	Support wetland habitat conservation and improvement projects Work with landowners and land management agencies to limit activities that may be detrimental to this species and wetlands Explore using beaver in areas where they historically occupied to provide additional breeding sites for the northern leopard frog; follow FWP's existing protocol on translocation

Current Impacts	Future Threats	Conservation Actions
Non-native species (e.g., game fish, mosquitofish, bullfrogs)	Non-native species (e.g., game fish, mosquitofish, bullfrogs)	Allow no introduction of game fish or bullfrogs into waters with known breeding sites Coordinate closely with fisheries conservation efforts in these areas Remove bullfrogs from isolated wetlands with northern leopard frog habitat Suppress the spread of bullfrogs
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands
Range contraction: this species has nearly vanished on western side of Continental Divide in Montana	Range contraction: this species has nearly vanished on western side of Continental Divide in Montana	Protect the two remaining breeding populations west of the Continental Divide in Montana Survey western Montana to locate additional populations Monitor historical breeding sites and populations Support ongoing reintroduction efforts
	Over collection	Increase education and information on amphibian biology and awareness of the importance of breeding sites Implement regulatory protections to prevent over collection

Great Plains Toad (*Anaxyrus cognatus*) State Rank: S2

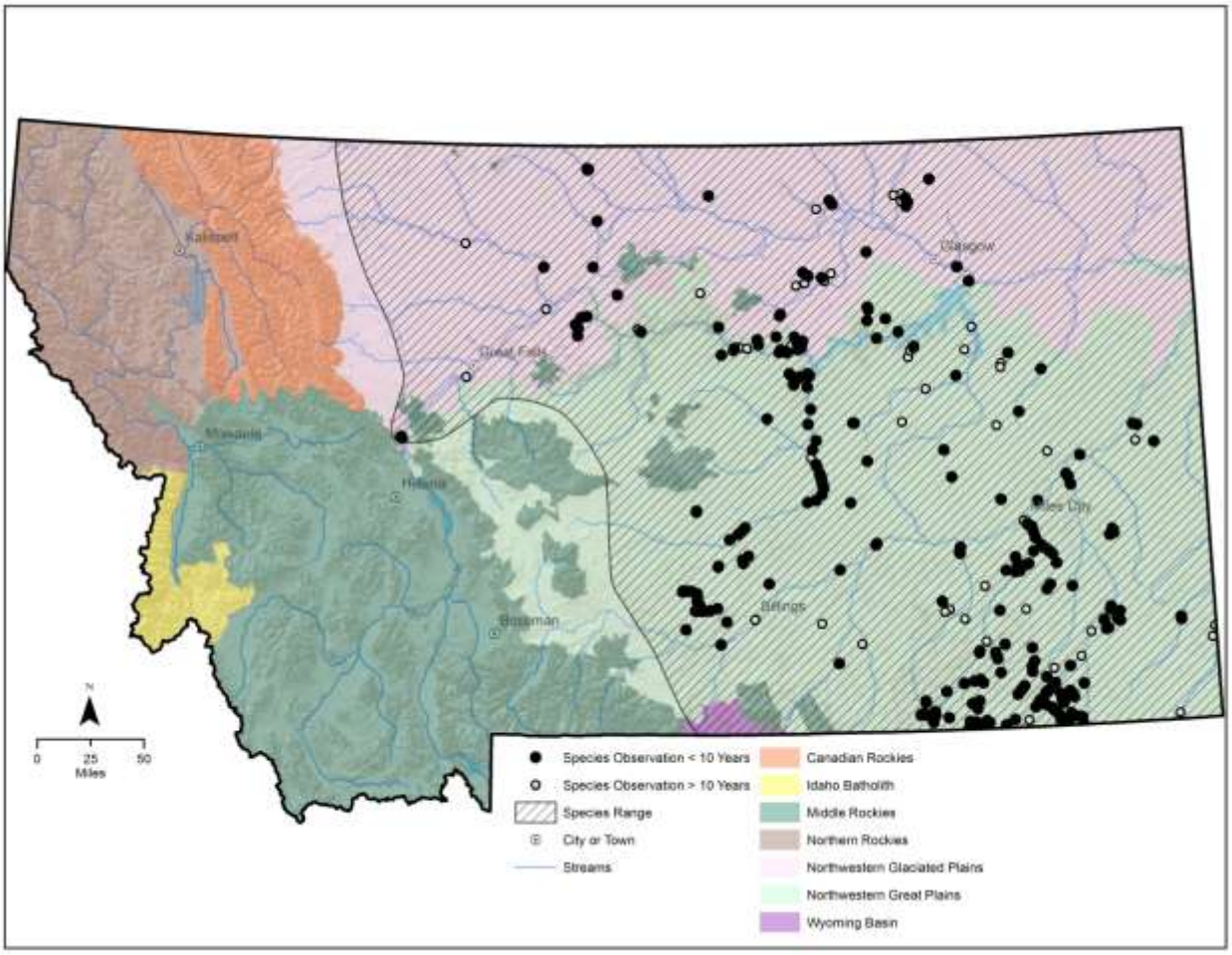

Figure 55. Montana range and observations of the Great Plains toad

Habitat

Little specific information on the habitat of Great Plains toad is available. It has been reported from sagebrush-grassland, rainwater pools in road ruts, in stream valleys, at small reservoirs and stock ponds, and around rural farms. Breeding has been documented in small reservoirs and backwater sites along streams (Mosimann and Rabb 1952, Dood 1980, Hendricks 1999).

Information gathered from other locations indicates that when inactive, the Great Plains toad is found in burrows, and under rocks or wood. During the active season, it occupies burrows during the day that are quite shallow. This species enters water only to breed. It breeds in rain pools, flooded areas, and ponds and reservoirs that fluctuate in size, and appears to prefer stock tanks and roadside ponds rather than floodplains (Baxter and Stone 1985). Eggs and larvae develop in shallow water that is usually clear or slightly turbid, but not muddy.

Management

No special management needs are currently recognized. However, at permanent and semi-permanent water bodies (reservoirs and stock ponds) where breeding has been observed, portions of the shoreline with emergent vegetation could be fenced to create exclosures that protect

breeding adults, eggs and tadpoles from trampling and the removal of emergent cover by livestock. Another option would be the creation of ponds designed for use by prairie amphibians as breeding sites, with the perimeter surrounded by fencing to prevent access by livestock. Game fish should not be introduced to any of these ponds.

Management Plan

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Great Plains Toad Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Breeding site destruction	Breeding site destruction	Protect certain wetlands occupied by Great Plains toads from introduced species and human disturbance Manage livestock access to known breeding sites within grazing allotments Maintain important wetland habitats Survey road ditches for tadpoles before any blading of ditches in June/July and defer blading where tadpoles are found Survey wetlands suitable for Great Plains toads
Disease and parasites	Disease and parasites	Implement and promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004)
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands

Western Toad (*Bufo boreas*) State Rank: S2

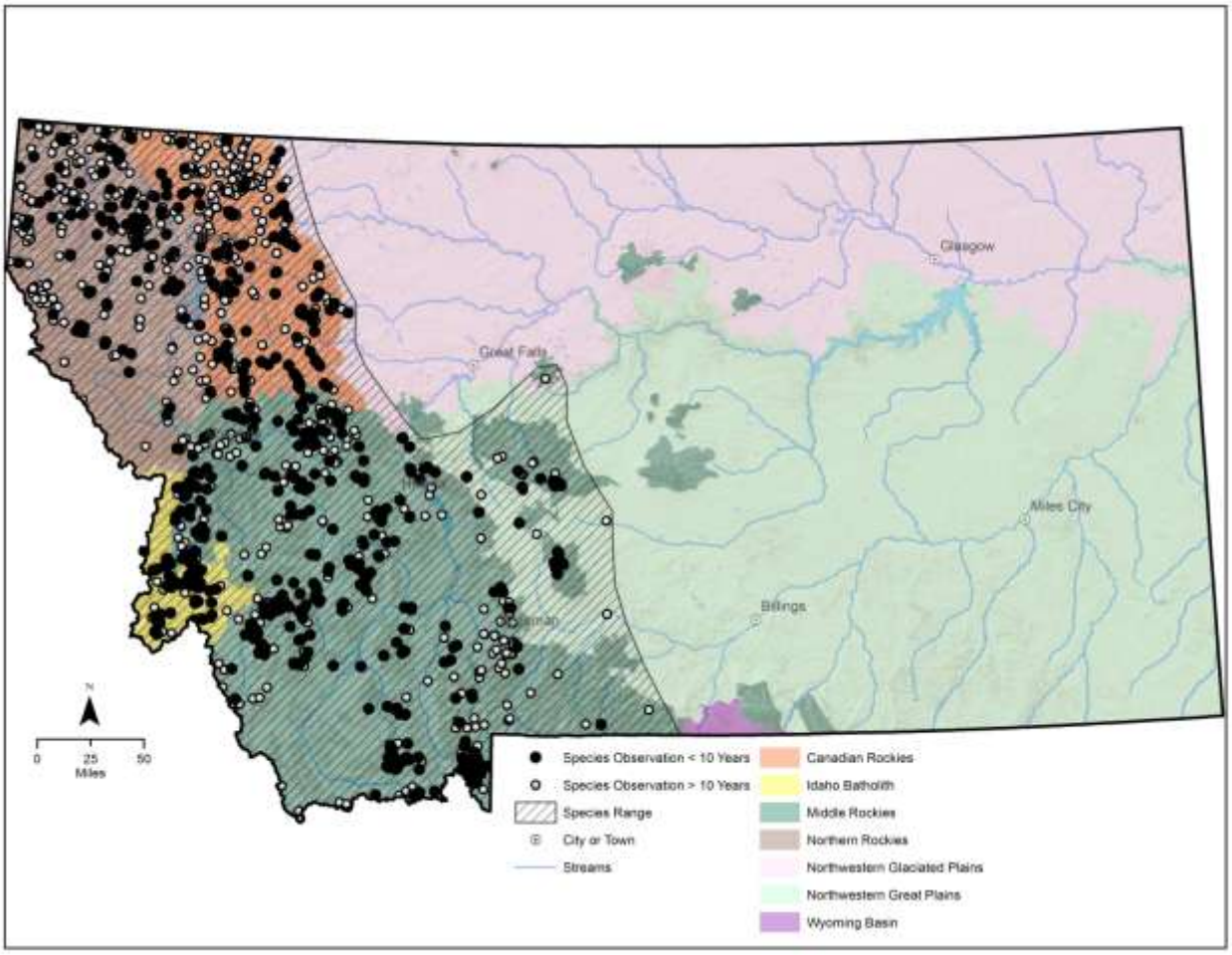

Figure 56. Montana range and observations of the western toad

Habitat

Habitats used by western toads in Montana are similar to those reported for other regions and range from low-elevation beaver ponds, reservoirs, streams, marshes, lake shores, potholes, wet meadows, and marshes to high-elevation ponds, fens, and tarns at or near tree line (Rodgers and Jellison 1942; Brunson and Demaree 1951; Miller 1978; Marnell 1997; Werner et al. 1998; Boundy 2001). Forest cover in or near encounter sites is often unreported, but toads have been noted in open-canopy ponderosa pine woodlands and closed-canopy dry conifer forests in Sanders County (Boundy 2001), willow wetland thickets and aspen stands bordering Engelmann spruce stands in Beaverhead County (Jean et al. 2002), and mixed ponderosa pine/cottonwood/willow sites or Douglas-fir/ponderosa pine forests in Ravalli and Missoula counties.

Elsewhere the western toad is known to utilize a wide variety of habitats, including desert springs and streams, meadows and woodlands, mountain wetlands, beaver ponds, marshes, ditches, and backwater channels of rivers where they prefer shallow areas with mud bottoms (Nussbaum et al. 1983; Baxter and Stone 1985; Russell and Bauer 1993; Koch and Peterson 1995; Hammerson 1999). Forest cover around occupied montane wetlands may include aspen,

Douglas-fir, lodgepole pine, Engelmann spruce, and subalpine fir; in local situations western toads may also be found in ponderosa pine forest. They also occur in urban settings, sometimes congregating under streetlights at night to feed on insects (Hammerson 1999). Normally they remain fairly close to ponds, lakes, reservoirs, and slow-moving rivers and streams during the day, but may range widely at night. Eggs and larvae develop in still, shallow areas of ponds, lakes, or reservoirs or in pools of slow-moving streams, often where there is sparse emergent vegetation. Adult and juvenile western toads dig burrows in loose soil, use burrows of small mammals, or occupy shallow shelters under logs or rocks. At least some toads overwinter in terrestrial burrows or cavities, apparently where conditions prevent freezing (Nussbaum et al. 1983; Koch and Peterson 1995; Hammerson 1999).

Management

In previous decades the western toad was considered the most abundant amphibian of the western third of the state (Rodgers and Jellison 1942; Brunson 1952; Maxell et al. 2003), and although still encountered widely and frequently though by no means commonly, it is no longer ranked as the most abundant amphibian. Numerous surveys since the early 1990s indicate that this species has experienced regional population declines in the state. Western toads were documented to breed at only 2-5% of more than 2,000 standing water bodies surveyed since 1997, and where breeding was documented, fewer than 10 breeding females contributed in a given year (Maxell 2000; Maxell et al. 2003). Rangewide declines in this species have been indicated in Montana as well as in other western states.

Management Plan

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Western Toad Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Breeding site destruction	Breeding site destruction	Explore using beaver in areas where they historically occupied to provide additional breeding sites for the western toad; follow FWP's existing protocol on translocation Manage livestock access to known breeding sites within grazing allotments Protect certain wetlands occupied by western toads from introduced species and human disturbance

Current Impacts	Future Threats	Conservation Actions
		Survey wetlands for suitable habitat Support habitat conservation and improvement projects Survey road ditches for tadpoles before any blading of ditches in June/July
Connectivity	Connectivity	Explore installation of underpasses to access breeding areas
Disease and parasites	Disease and parasites	Implement and promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004)
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands
Predation increase by species attracted to human disturbance	Predation increase by species attracted to human disturbance	Avoid building new roads into areas near breeding sites Control availability of anthropogenic food sources near breeding sites (e.g., trash collection containers, livestock feeding areas) to reduce the presence of avian and mammalian predators near breeding sites

Birds

(The distribution reflects a species' entire range and does not discriminate between breeding and wintering areas.)

Whooping Crane (*Grus americana*) State Rank: S1M

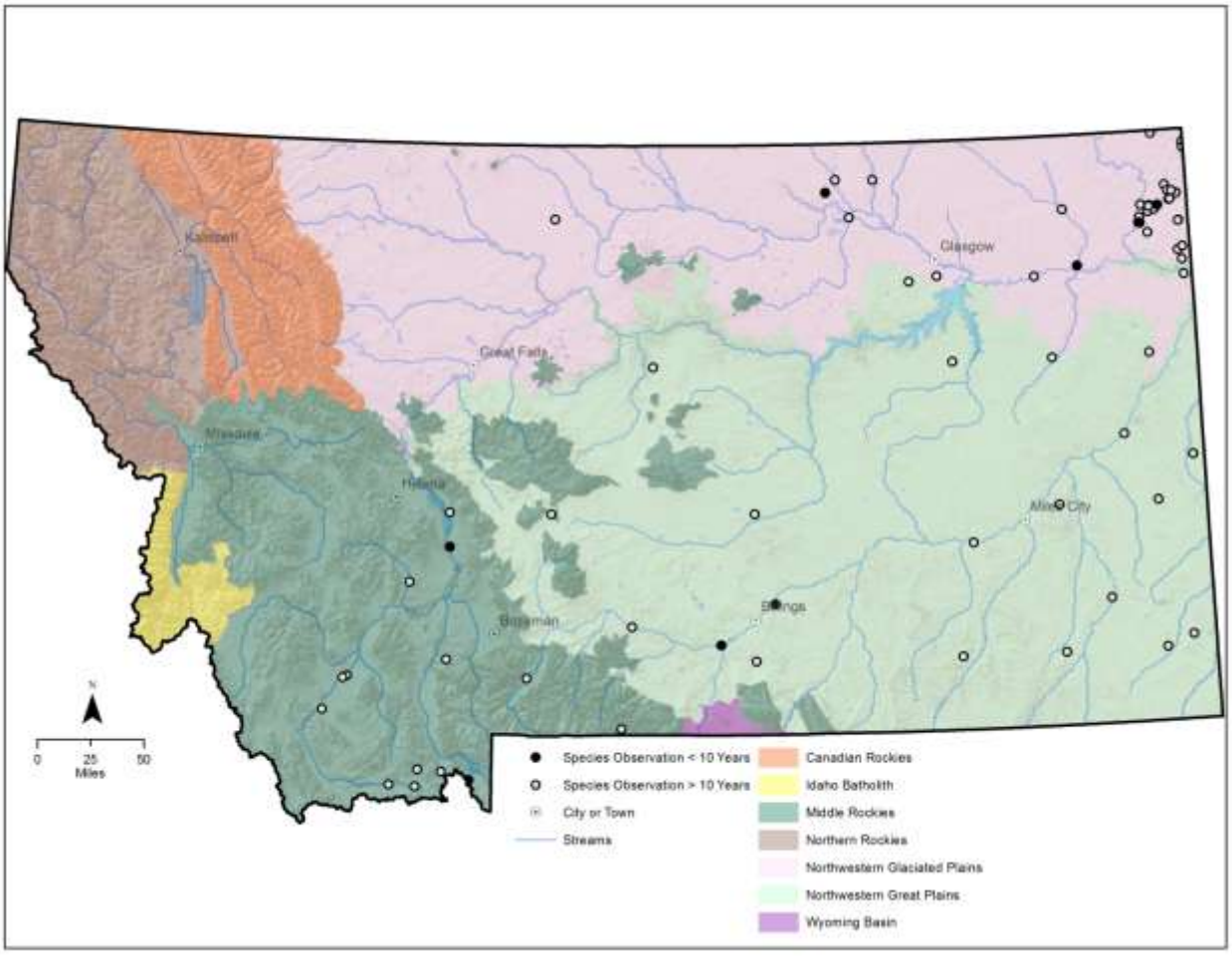

Figure 57. Montana observations of the whooping crane

Habitat

Within Montana the whooping crane has been observed at or within the marsh habitat present at Medicine Lake NWR and Red Rock Lakes NWR. Observations of individual birds in other areas of the state include grain and stubble fields, recently burned areas, wet meadows, wet prairie habitat, and freshwater marshes that are usually shallow and broad with safe roosting sites and nearby foraging opportunities.

Management

Efforts continue to protect and restore wetlands in the northeastern corner of Montana, in the area where whooping cranes have migrated in the past. There are also continued efforts to educate crane and waterfowl hunters on the identification of whooping cranes in an effort to avoid accidental harvest.

Management Plans
Kushlan, J. A., M. J. Steinkamp, K. C. Parsons, J. Capp, M. A. Cruz, M. Coulter, I. Davidson, L. Dickson, N. Edelson, R. Elliot, R. M. Erwin, S. Hatch, S. Kress, R. Milko, S. Miller, K. Mills, R. Paul, R. Phillips, J. E. Saliva, B. Sydeman, J. Trapp, J. Wheeler, and K. Wohl. 2002. Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan, Version 1. Waterbird Conservation for the Americas, Washington, DC. 78 pp.

Olsen, D. L. 1980. Whooping Crane Recovery Plan. Whooping Crane Recovery Team. 206 pp.

Whooping Crane Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Collisions with powerlines	Collisions with powerlines Collision with turbine blades	Conduct preconstruction evaluations and/or surveys to identify wetlands that provide potentially suitable stopover habitat Do not site turbines, transmission lines, access roads, or other project facilities within or adjacent to wetlands that provide suitable stopover habitat (U.S. Department of Energy Western Area Power Administration and USFWS 2013)
Habitat degradation and fragmentation of native prairies and wetlands	Habitat degradation and fragmentation of native prairies and wetlands	Identify migration stopover habitat and work to conserve grasslands and wetlands in those areas Work with landowners to conserve native prairies in northeastern Montana
Human misidentification as sandhill cranes during hunting season	Human misidentification as sandhill cranes during hunting season	Educate hunters on identification and distinction between sandhill and whooping cranes

Black Rosy-Finch (*Leucosticte atrata*) State Rank: S2
Species of Greatest Inventory Need

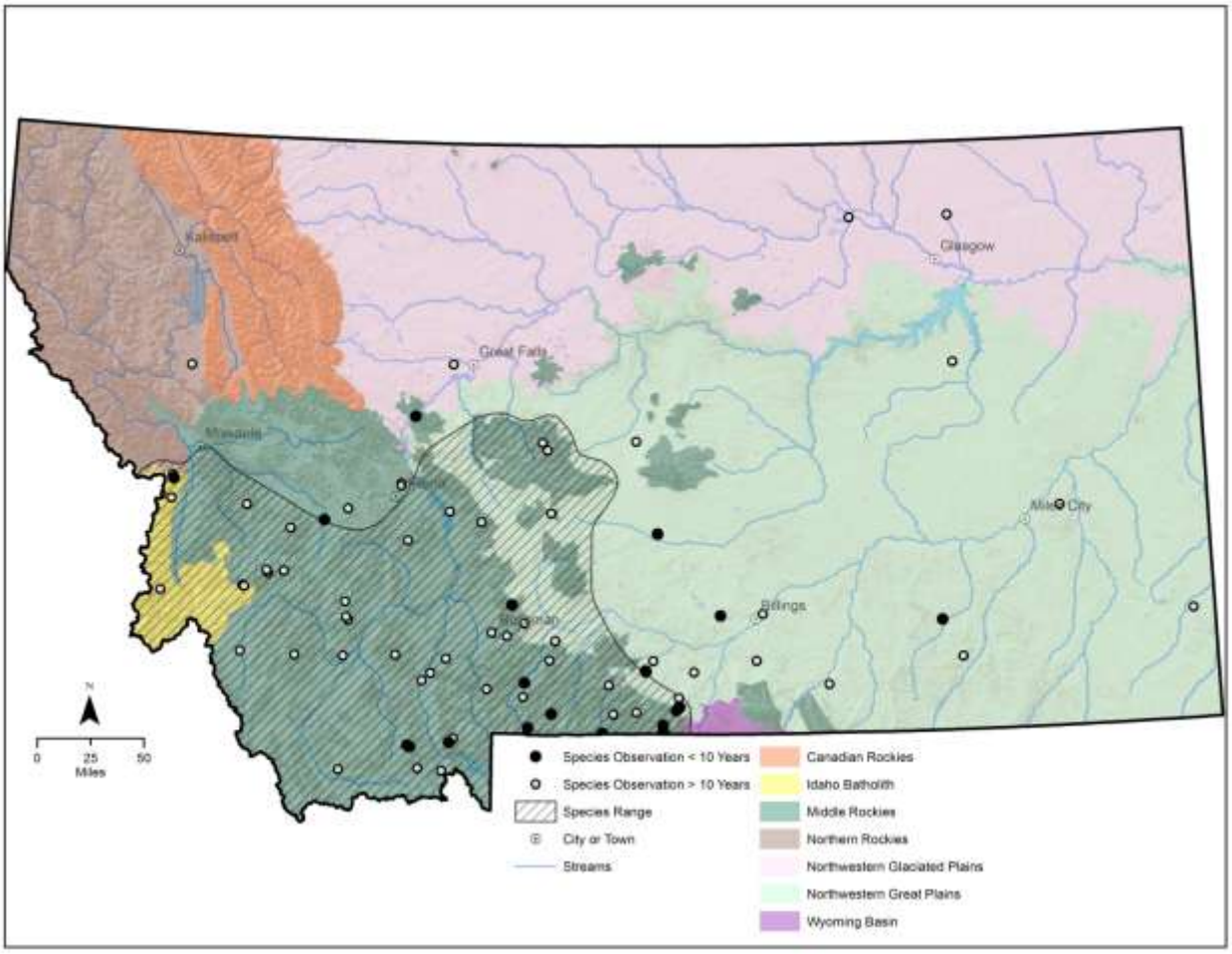

Figure 58. Montana range and observations of the black rosy-finch

Habitat

Habitat use in Montana has not been studied, but is similar to other regions (P. Hendricks personal observation), where black rosy-finches are known to nest in crevices in cliffs and talus among glaciers and snowfields above timberline (also possibly in abandoned buildings above treeline) and forage in barren, rocky or grassy areas adjacent to the nesting sites; in migration and winter they also occur in open situations, fields, cultivated lands, brushy areas, and around human habitation (American Ornithologists Union 1998, Johnson 2002). They may roost in mine shafts or similar protected sites. During some winters, individuals move out onto the shortgrass and mid-grass prairies to feed (Hendricks and Swenson 1983, Johnson 2002).

Management Plan

Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Black Rosy-Finch Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor - inadequate monitoring Outdated survey		Encourage citizen data collection in winter & data entry via Ebird or other appropriate publicly shared outlets Examine Christmas Bird Count data for trends in wintering populations Establish and periodically run alpine bird surveys during the breeding season to monitor changes in distribution and population Search for winter roost sites - determine if they need protection (e.g. open mine shafts) Target species for survey and inventory Use location data and habitat layer to derive a list of high priority breeding sites to visit
Human disturbance	Human disturbance	If winter roost sites are identified as threatened by human activities consider management options (e.g. gate mine shafts instead of sealing them)
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations
	Wind energy development	Follow recommendations in FWP's *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep)

Gray-crowned Rosy-Finch (*Leucosticte tephrocotis*) State Rank: S2B, S5N
Species of Greatest Inventory Need

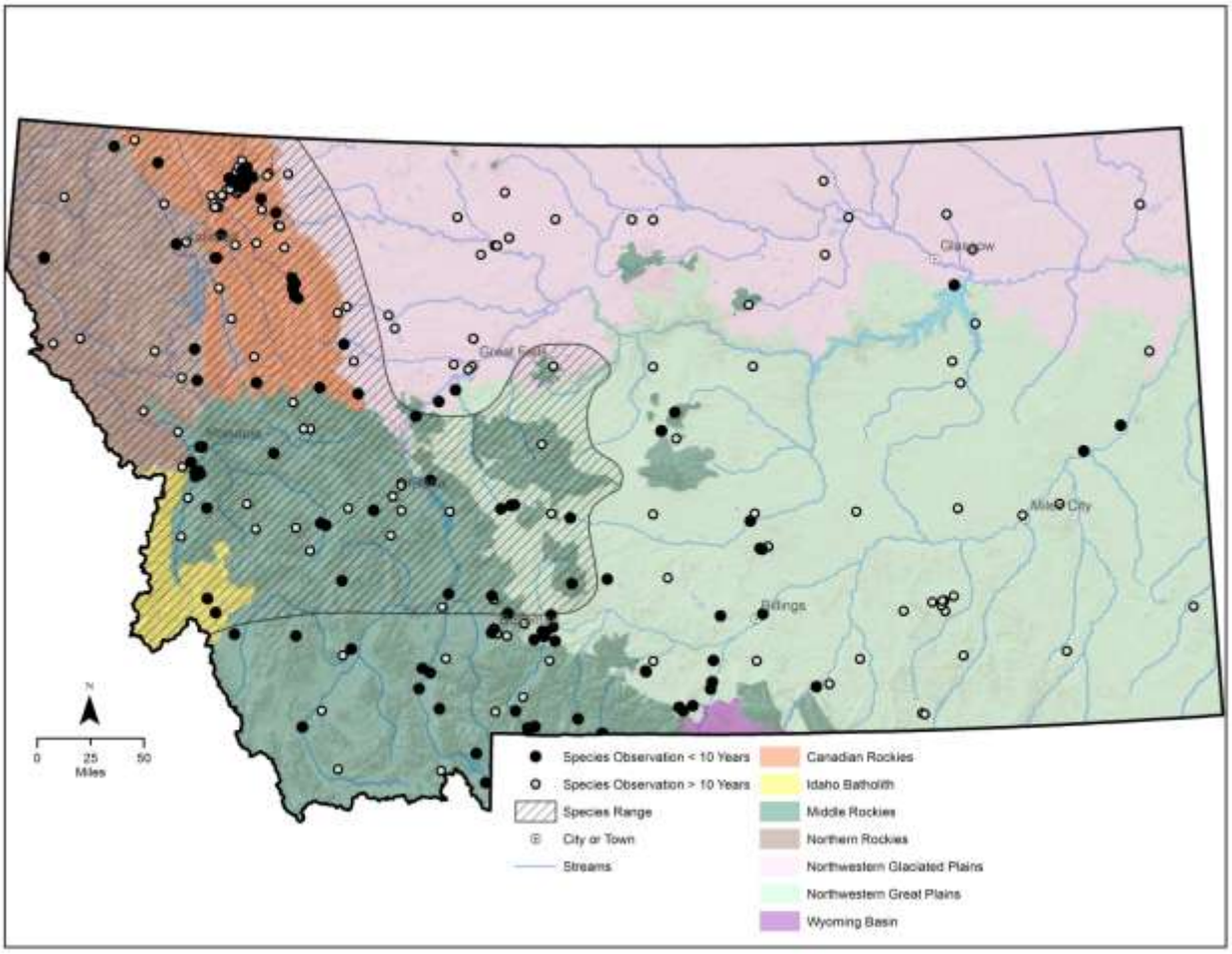

Figure 59. Montana range and observations of the gray-crowned rosy-finch

Habitat

Breeding, nesting, and winter roosting habitat in Montana is similar to other regions in the species' range (Johnson 1965, Hendricks 1981). Gray-crowned rosy-finches nest in crevices in cliffs and talus among glaciers and snowfields above timberline (also in abandoned buildings above treeline) and forage in barren, rocky or grassy areas adjacent to the nesting sites; in migration and winter they also occur in open situations, fields, cultivated lands, brushy areas, and around human habitation. They may roost in mine shafts or similar protected sites. During some winters individuals move out onto the shortgrass and mid-grass prairies to feed (Hendricks and Swenson 1983, Swenson et al. 1988).

Management

No special management action appears to be required at this time, although traditional winter roosts in abandoned mine shafts should be protected and reclaimed using methods that allow continued access by the birds, if possible.

Management Plan
None.

Gray-crowned Rosy-Finch Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor - inadequate monitoring Lacks a baseline survey		Determine where the Montana nesting populations over winter Encourage citizen data & data entry via Ebird or other appropriate publicly shared outlets Examine Christmas Bird Count data for trends in wintering populations Search for winter roost sites - determine if they need protection (e.g. open mine shafts) Establish and periodically run alpine bird surveys during the breeding season to monitor changes in distribution and population Target species for survey and inventory
Human disturbance	Human disturbance	If winter roost sites are identified as threatened by human activities consider management options (e.g. gate mine shafts instead of sealing them)
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routine monitoring of known populations
	Wind energy development	Follow recommendations in FWP's *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep)

Blue-gray Gnatcatcher (*Polioptila caerulea*) State Rank: S2B

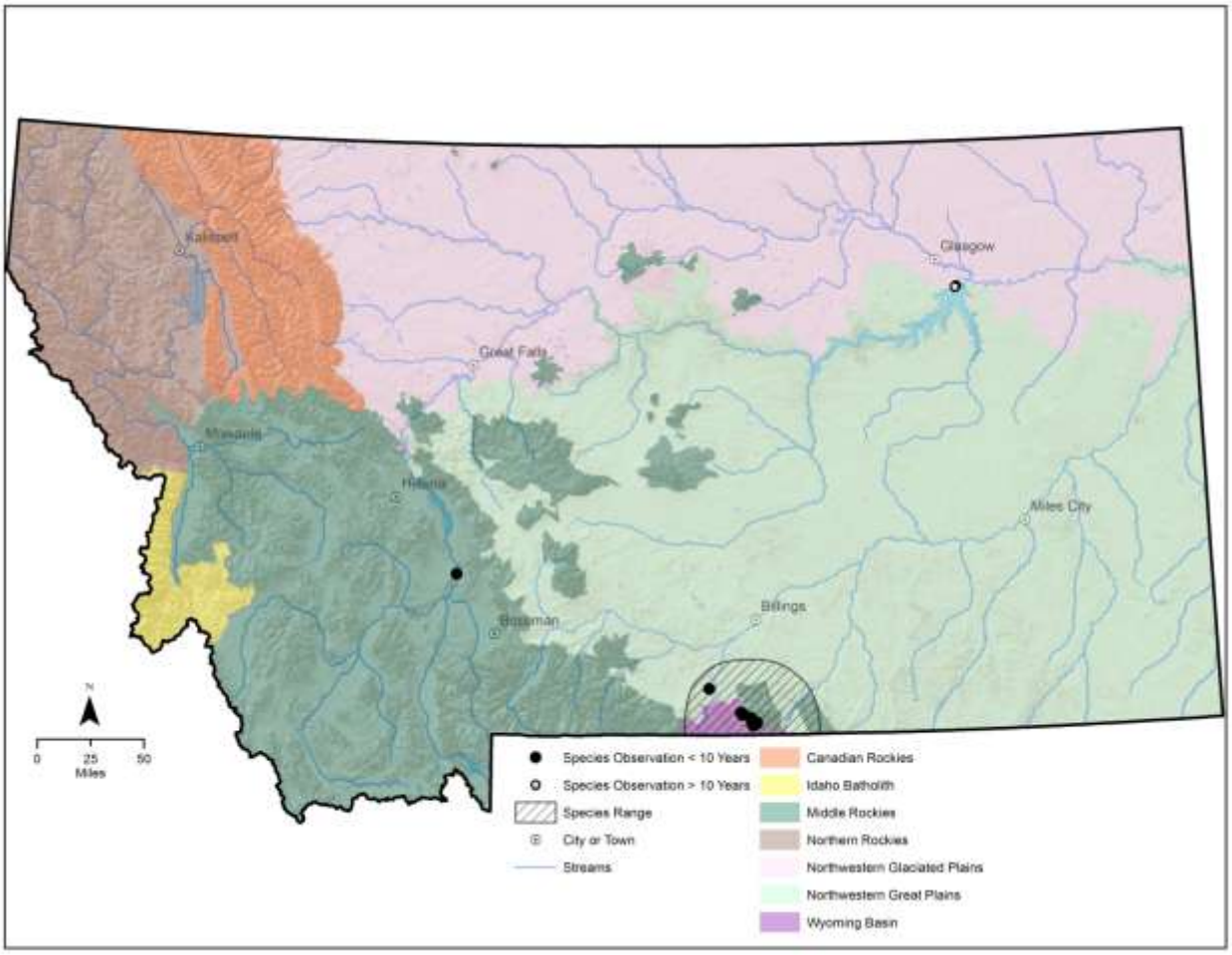

Figure 60. Montana range and observations of the blue-gray gnatcatcher

Habitat

Breeding habitat in Montana is restricted to open stands of Utah juniper (*Juniperus osteosperma*) and limber pine (*Pinus flexilis*) with intermixed big sage (*Artemisia tridentata*). All nests found have occurred 2.5 to 5.5 feet above ground in Utah juniper or big sage growing on the lower slopes or bottoms of canyons (P. Hendricks unpublished data).

Throughout their range blue-gray gnatcatchers typically inhabit deciduous forest, riparian woodland, open woodland, second-growth, scrub, brushy areas and chaparral in the east, south, and coastal west (Tropical to lower Temperate zones) (American Ornithologists Union 1998, Ellison 1992). In the Great Basin region of the west they also occupy open pine woodland, where they are associated with rosaceous shrubs and rock outcrops (Pavlacky and Anderson 2001).

They nest especially where tracts of brush, scrub, or chaparral are intermixed with taller vegetation (e.g., forest edge, riparian corridors); nesting often occurs near water. Nests are built on branches or forks of trees or shrubs, usually 3.3-82 feet above ground (Harrison 1978) and both sexes participate in nest construction. A broad range of brushy habitats is occupied during winter (Ellison 1992).

Management
No management activity is currently underway. Grazing may have a negative impact by directly or indirectly altering habitat for nesting and foraging. Nest parasitism by brown-headed cowbirds has recently been documented in Montana (P. Hendricks unpublished data).

This species is expanding its range northward and using existing bird survey efforts (e.g. Statewide Integrated Monitoring in Bird Conservation Regions surveys) may help track this expansion. Targeted surveys still may be needed.

Management Plan
None.

Blue-gray Gnatcatcher Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Brown-headed cowbird nest parasitism	Brown-headed cowbird nest parasitism	Monitor known breeding sites to determine status Monitor parasitism by brown-headed cowbirds and address if determined to be detrimental
	Incompatible grazing practices	Work with landowners and land management agencies to ensure species nesting and foraging needs are adequately addressed in grazing and RMPs
	Juniper removal	Restrict juniper removal in occupied gnatcatcher habitat
	Wildfire increase	Appropriate conservation action(s) unknown

Caspian Tern (*Hydroprogne caspia*) State Rank: S2B

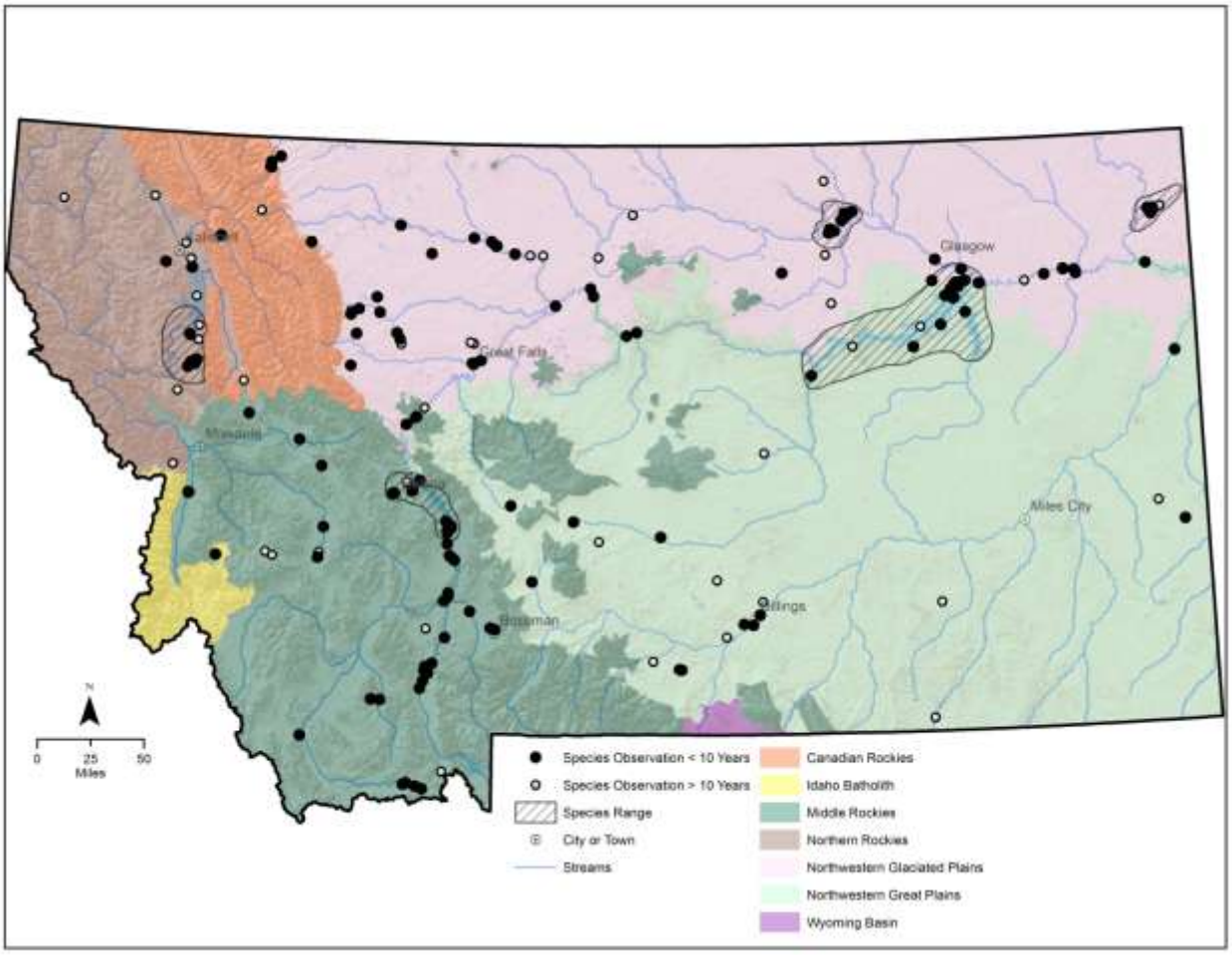

Figure 61. Montana range and observations of the Caspian tern

Habitat

In Montana, the Caspian tern prefers islands within large lakes or reservoirs, where sandy or stony beaches are used for nesting (Johnsgard 1986). The species has also been noted to utilize rivers, though nesting in this habitat is not documented (Johnsgard 1986, Casey 2000).

Management

No management activities specific to Caspian tern in Montana are documented, however, management recommendations include surveying known nesting colonies on an annual basis to determine status; providing adequate levels of water to protect nesting terns from mammalian predators; managing water levels on lake and river nesting areas to mimic natural seasonal fluctuations; and minimizing human disturbance at nesting colonies during the breeding season (Casey 2000).

Management Plan

Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Caspian Tern Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Human disturbance	Human disturbance	Minimize human disturbance at nesting colonies during the breeding season
Inter-species competition	Inter-species competition	Survey known and potential nesting areas routinely to estimate competition impacts
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

Least Tern (*Sterna antillarum*) State Rank: S1B
Species of Greatest Inventory Need

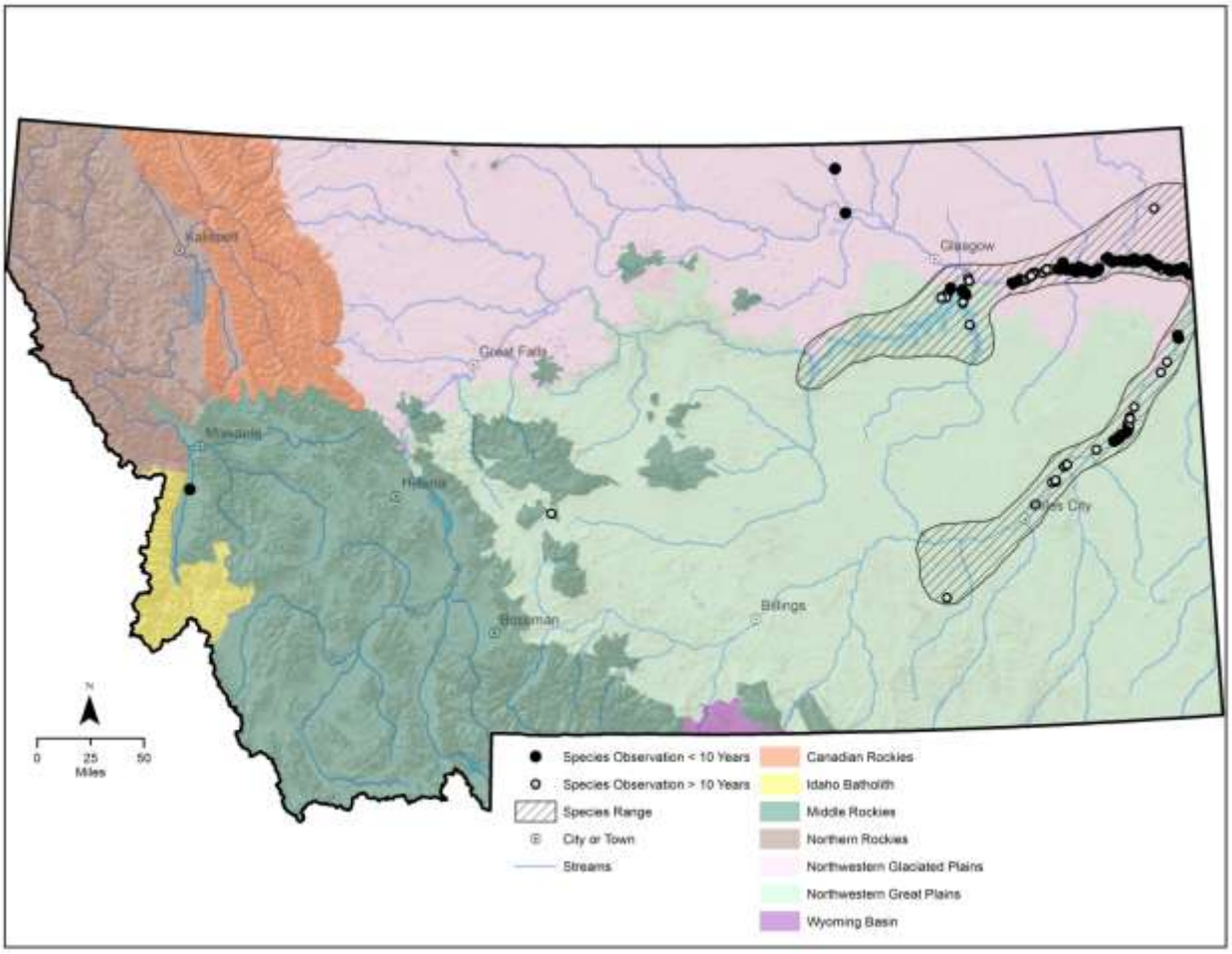

Figure 62. Montana range and observations of the least tern

Habitat

Least terns nest on unvegetated sand-pebble beaches and islands of large reservoirs and rivers in northeastern and southeastern Montana, specifically the Yellowstone and Missouri river systems (Christopherson et al. 1992). These wide, open river channels and lake and pothole shorelines provide the preferred characteristics for nesting least terns. Sites with gravel substrate provide the most suitable sites for nesting (Montana Piping Plover Recovery Committee (MPPRC) 1994). One of the most limiting factors to nesting site selection is vegetational encroachment; least terns avoid areas where relatively thick vegetation provides cover for potential predators. Fine-textured soils are easier to treat mechanically than rocky or gravelly soils when vegetation is determined as a limiting factor in an area's ability to provide suitable nesting habitat, but fine soils are not typically a preferred nesting substrate (MPPRC 1994).

In Montana, as in other areas, another and more important limiting factor in nest site selection is the location of nesting sites in relation to surrounding water levels. Nests are often inundated because water levels are kept unnaturally high throughout the breeding season and high winds can cause nests to be flooded. In addition, nesting sites may simply not be available because of

encroaching vegetation or because water levels are so high that beaches are under water during the early part of, and possibly throughout, the nesting season (MPPRC 1994).

Management

As identified in the USFWS recovery plan for the least tern, delisting can be considered when four censuses confirm that the interior population has reached 7,000 and remains stable for at least 10 years. The goal for the Missouri River system is 2,100 birds (census numbers in 2003 revealed 735 birds for the Missouri River in total; Pavelka personal communication), with 50 individuals as the minimum targeted for Montana's population. Interior least tern counts in the Missouri River drainage continue to fall short of that population target even though extensive recovery efforts have occurred in that drainage over the past decade. This drainage has been extensively impounded and modified, and population size of least terns in the Missouri River drainage remains at or near levels that were present in 1990, despite a high investment in habitat manipulation and management. This indicates that the population has been stable, estimated recoverable carrying capacity of available habitat in the Missouri River drainage was likely overestimated in the 1990 recovery plan, and is not biologically achievable under the existing habitat baseline.

FWP periodically surveys least terns along the Yellowstone but has found average or fewer than average number of birds during the past five years of monitoring.

Appropriate water management, which includes natural seasonal flows, is identified as the major consideration for least tern conservation in Montana, for the greatest threat to breeding pairs, in some years, is the loss of existing nesting sites from inundation by high water at unusual times of the breeding season (MPPRC 1994). Rising water levels late in the nesting season can also decrease overall island size, and may result in assisting local avian predators to locate nests (containing eggs or nestlings) more easily (Erickson and Prellwitz 1999). These conditions reinforce the need to manage reservoirs and dammed rivers in a manner that mimics more natural seasonal fluctuations for the protection of least tern populations. Other management activities beneficial to the species include: instituting grazing management practices more appropriate to the conservation of the least tern; controlling access to key nesting locations; moving nests upslope from areas where flooding of nests is imminent; relocating eggs to nests of other least terns for foster incubation; signing of beaches to indicate nesting by least terns (though in areas where there is hostility toward the species, or toward listed species in general, this is not recommended); beach enhancement (grading or burning to remove unwanted encroaching vegetation); raising island elevation to make room to move nests in years with rising water during the nesting season (MPPRC 1994); and timing spring flow releases from Fort Peck Dam to more closely mimic the natural seasonal flows of the river (FWP 2013d). Other management activities to enhance habitat or affect better protection for this species includes reducing human, dog, and vehicular disturbance during nesting (FWP 2013d).

Management of least terns is under direction of the 1990 USFWS Recovery Plan and the 2006 FWP species management plan that calls for a goal of 50 individuals within Montana.

Management Plans
Atkinson, S. J., and A. R. Dood. 2006. Montana Interior Least Tern Management Plan. Montana Fish, Wildlife and Parks, Bozeman, Montana. 47 pp.

Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Kushlan, J. A., M. J. Steinkamp, K. C. Parsons, J. Capp, M. A. Cruz, M. Coulter, I. Davidson, L. Dickson, N. Edelson, R. Elliot, R. M. Erwin, S. Hatch, S. Kress, R. Milko, S. Miller, K. Mills, R. Paul, R. Phillips, J. E. Saliva, B. Sydeman, J. Trapp, J. Wheeler, and K. Wohl. 2002. Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan, Version 1. Waterbird Conservation for the Americas, Washington, D.C. USA, 78 pp.

U.S. Fish and Wildlife Service. 1990. Recovery plan for the interior population of the least tern (*Sterna antillarum*). Twin Cities, Minnesota. 90 pp.

Least Tern Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor Outdated survey		Target species for survey and inventory
Food availability	Food availability	Investigate fish prey abundance and foraging success along both the Missouri and Yellowstone rivers
Human disturbance	Human disturbance	Manage human use at nesting beaches Preserve and restore suitable nesting habitat through protective easements
Nesting and reproductive success	Nesting and reproductive success	Analyze the population's likelihood of persistence, using Population Viability Analysis, coupled with a review of the status of the least tern Continue annual monitoring of terns coupled with efforts to standardize monitoring and data collection techniques within and between states in the interior U.S.
Pollution and environmental contaminants	Pollution and environmental contaminants	Decrease point and nonpoint inputs of pesticides and heavy metals into rivers and floodplains

Current Impacts	Future Threats	Conservation Actions
Increased predator abundance	Increased predator abundance	Continue site specific use of predator deterrents and predator control measures where predators are determined to be a limiting factor Manage vegetation encroachment to increase nest site availability and security Remove human created structures utilized by predators (e.g. abandoned buildings)
Unpredictable water levels (flooding)	Unpredictable water levels (flooding)	Manage water flows that reduce the potential for nest inundation but allow for periodic bank scouring for habitat creation
Water flow and river dynamics	Water flow and river dynamics	Manage water flows that restore riverine habitats and their associated ecosystem processes

Chestnut-collared Longspur (*Calcarius ornatus*) State Rank: S2B

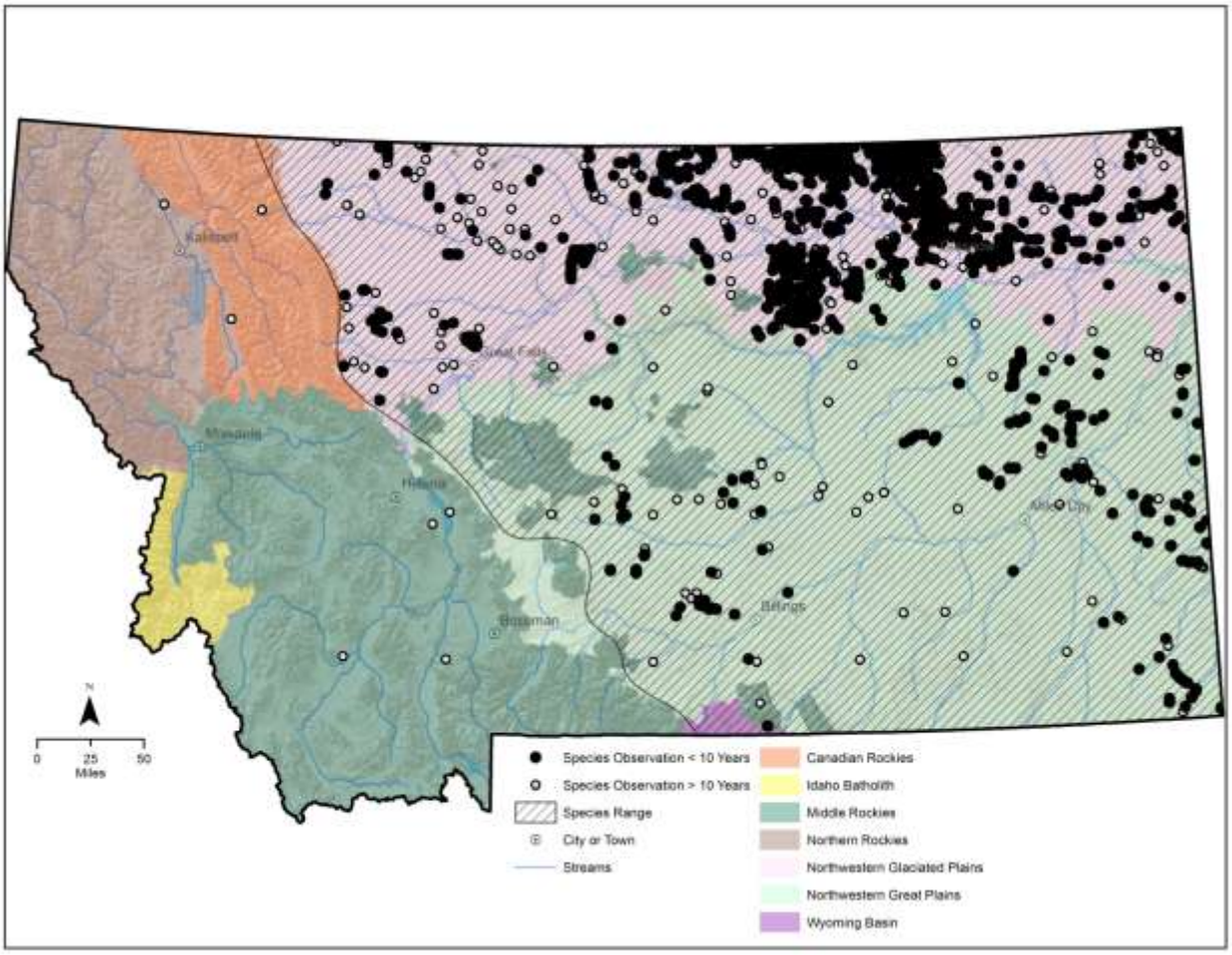

Figure 63. Montana range and observations of the chestnut-collared longspur

Habitat

Species prefers short-to-medium grasses that have been recently grazed or mowed. This species prefers native pastures.

Management

This species is one of several that is monitored under the Statewide Integrated Monitoring in Bird Conservation Regions surveys (Hanni et al. 2011).

Management Plan

Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Chestnut-collared Longspur Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Habitat conversion	Habitat conversion	Protect grasslands that are at highest risk of conversion to cropland through the use of easements, fee acquisitions, and incentive programs Support the SodSaver provision of Farm Bill to reduce incentive to convert native grasslands to crops Provide incentives to maintain grazed grasslands over conversion to croplands Work with landowners and land management agencies to limit activities that may be detrimental to this species
Lack of grazing to create favorable structure	Lack of grazing to create favorable structure	Implement grazing management that creates heterogeneous structure, with emphasis of mid to shorter stature vegetation on a yearly basis Reduce tall, thick vegetation in priority areas Work with landowners and land management agencies to ensure species needs are adequately addressed in grazing and RMPs
	Oil and gas exploration and extraction	Follow recommendations in FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (In prep) Monitor population trends via *Breeding Bird Surveys* and *Statewide Integrated Monitoring in Bird Conservation Regions* (Hanni et al. 2011) surveys
	Wind energy development	Follow recommendations in FWP's *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep)

Mountain Plover (*Charadrius montanus*) State Rank: S2B

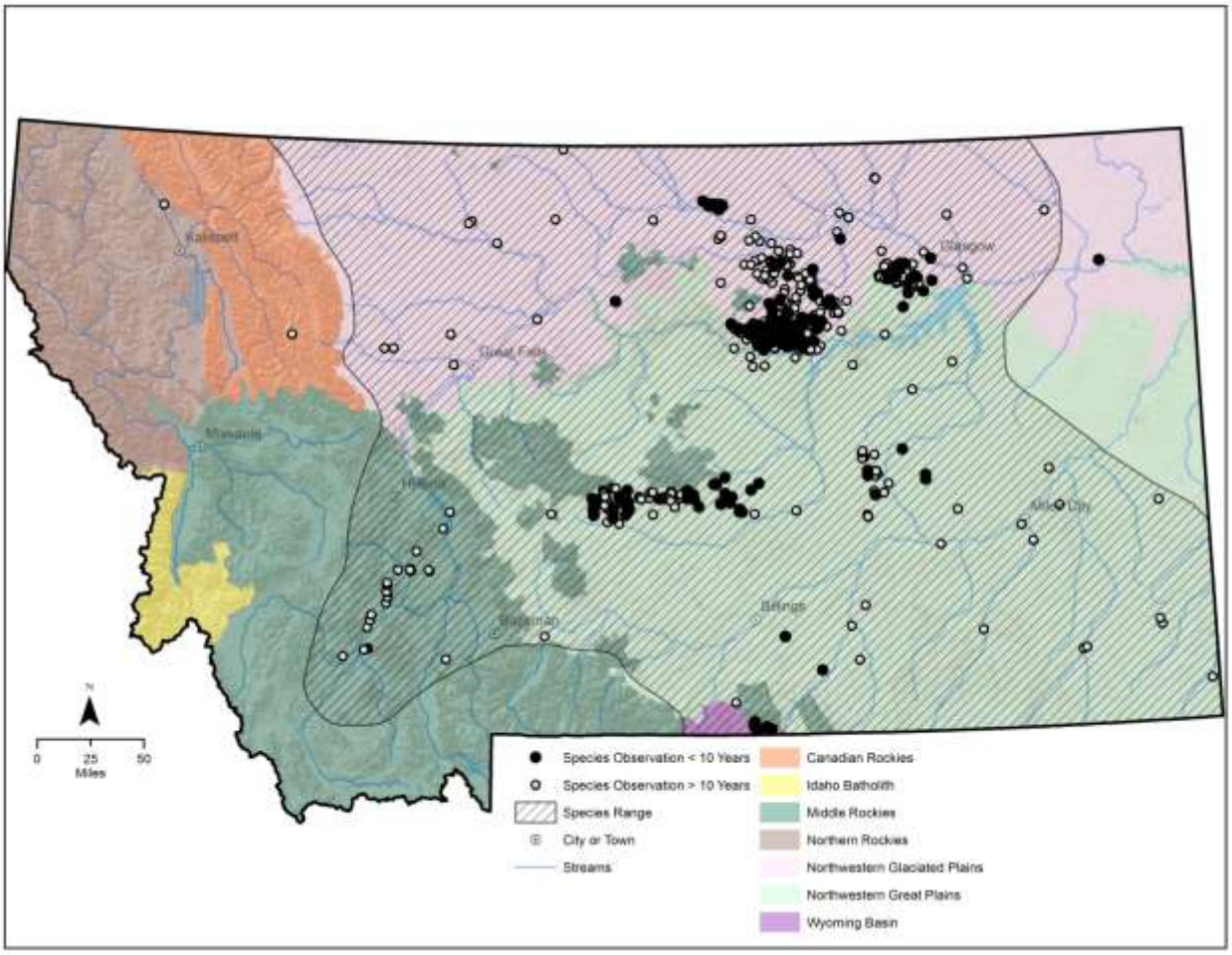

Figure 64. Montana range and observations of the mountain plover

Habitat

Habitat use in Montana appears similar to other areas within the species' global breeding range, i.e., use of prairie dog colonies are primarily used in Montana; however, other short-grass prairie sites are confirmed as preferred breeding habitat. Records indicate the species utilizes towns of both white-tailed (*Cynomys leucurus*) and black-tailed prairie dogs (*Cynomys ludoviscianus*). Prairie dog towns provide greater horizontal visibility, a higher percentage of bare ground, refugia for consumption, and a higher diversity of forbs than adjacent areas (Olsen 1985). Mountain plovers will use towns as small as 7.4 acres (Knowles et al. 1982); from 15 to 124 acres in another study (Olson-Edge and Edge 1987), and from five to more than 371 acres in another (Dinsmore 2001). Knopf and Rupert (1996) found the minimum habitat requirement for broods in Montana was 70 acres.

Primary habitat use in Montana during the breeding season includes heavily grazed, short-grass prairie sites. Habitat in Phillips and Blaine counties, the area containing the largest known populations of mountain plover in the state, is dominated by the native plant species *Bouteloua gracilis* and *Koeleria cristata.* This area also contains *Stipa comata*, *Agropyron smithii*, *Carex* spp., *Artemisia frigida*, *Opuntia polyacantha*, and *Gutierrezia sarothrae* (FaunaWest 1991).

Knowles and Knowles (1993) determined that in the northeastern portion of the state, mountain plover also selected sites associated with habitat dominated by *Atriplex gardneri* and *Eriogonum multiceps*, while use in the central and southwestern areas of the state was associated with *Bouteloua gracilis* and *Stipa comata*. Strong preference was also given to sites with slopes less than 5% and grass height of less than three inches (Knowles et al. 1995). Knowles and Knowles (1993) indicates that sites selected within these habitat types were restricted to areas intensively grazed by prairie dogs, sheep, and/or cattle, especially those of the *Stipa comata* and *Bouteloua gracilis* habitat type (Knowles and Knowles 1997).

Management

Only the BLM has some management activities specific to mountain plover; increased coordinated management activities in Montana are needed. The unifying habitat features desirable to mountain plovers are extremely short vegetation, a high percentage of bare soil, and an extensive area (0.3 to 0.6 miles in diameter) of nearly level terrain (Knowles and Knowles 1997). Management practices should emulate these parameters to ensure that these populations persist. Several studies have suggested specific conservation actions that could be taken to benefit mountain plover habitat (Wershler 1989; FaunaWest Wildlife Consultants 1991; Knopf 1991; Carter and Barker 1993; USFWS 1995; Dinsmore 2001).

Management Plans

Brown, S., C. Hickey, B. Harrington, and R. Gill, eds. 2001. The U.S. Shorebird Conservation Plan, 2nd ed. Manomet Center for Conservation Sciences, Manomet, Massachusetts.

Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Mountain Plover Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Decrease in the total acreage of prairie dog habitat on suitable substrate selected by mountain plovers	Decrease in the total acreage of prairie dog habitat on suitable substrate selected by mountain plovers	Continue management and potential enhancement to prairie dog colonies Work through cooperative agreements with private landowners and land management agencies to manage for healthy populations of prairie dogs Use of deltamethrin to protect prairie dog populations until a sylvatic plague vaccine is available Continue to develop, refine, and implement financial incentives for landowners to maintain prairie dogs

Current Impacts	Future Threats	Conservation Actions
Habitat loss due to conversion of short-grass prairies to agriculture	Habitat loss due to conversion of short-grass prairies to agriculture	Provide incentives to maintain grazed grasslands over conversion to croplands Support strategic conservation easements to enhance and protect important native habitat Work with landowners and land management agencies to limit activities that may be detrimental to this species
Invasive plant species	Invasive plant species	Apply appropriate range management practices to reduce presence and spread of noxious and invasive plant species Control shrub and noxious weed encroachment at known and potential breeding sites
Lack of grazing to create favorable structure	Lack of grazing to create favorable structure	Work with landowners and land management agencies to ensure species needs are adequately addressed in grazing and RMPs Support livestock grazing management that maintains or improves native rangeland integrity

Piping Plover (*Charadrius melodus*) State Rank: S2B

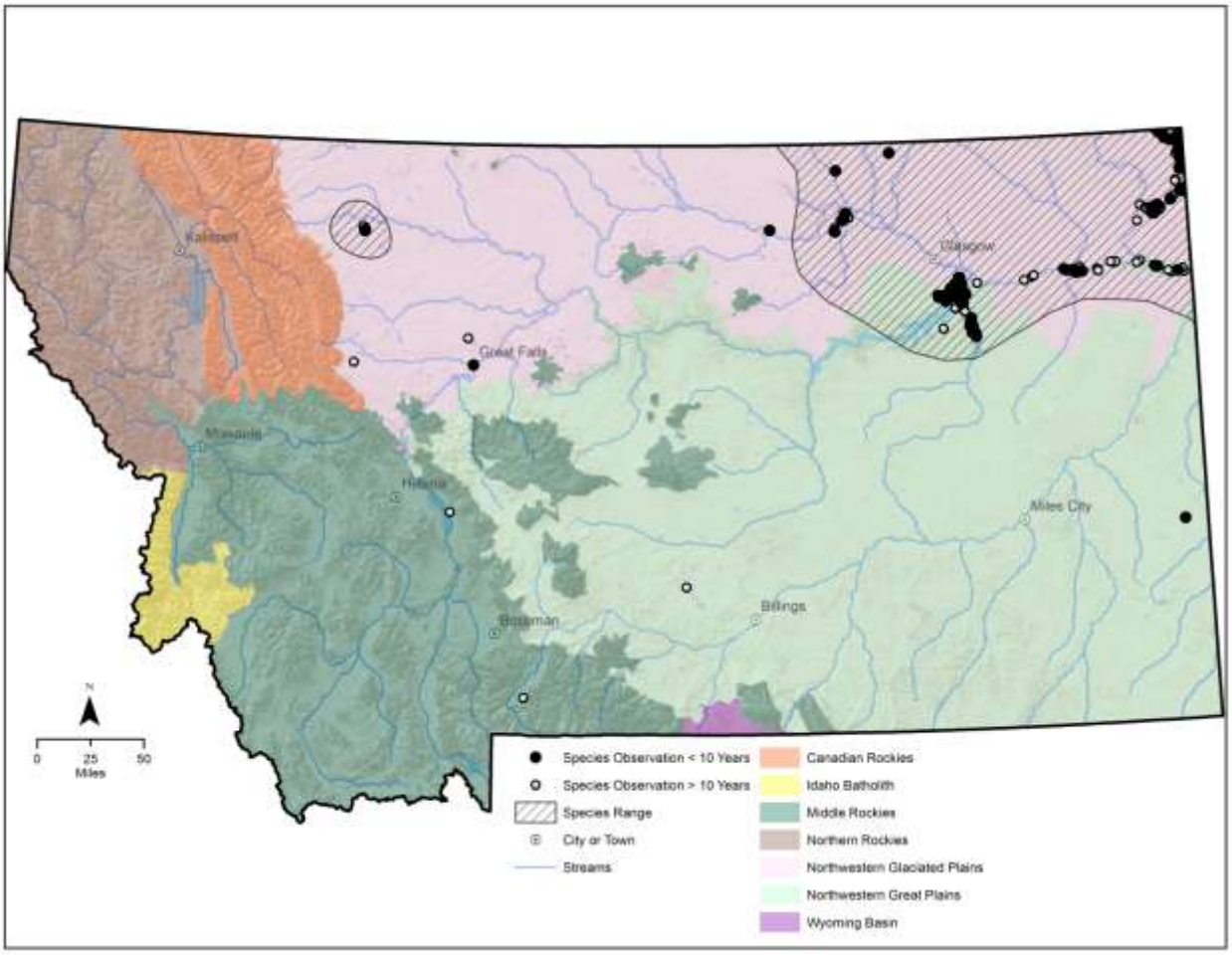

Figure 65. Montana range and observations of the piping plover

Habitat

Piping plovers primarily select unvegetated sand or pebble beaches on shorelines or islands in freshwater and saline wetlands. Vegetation, if present at all, consists of sparse, scattered clumps (Casey 2000). Open shorelines and sandbars of rivers and large reservoirs in the eastern and north-central portions of the state provide prime breeding habitat (FWP 2013e). In Montana and throughout the species' range, nesting may occur on a variety of habitat types. If conditions are right, alkali wetlands, lakes, reservoirs, and rivers can all provide the essential features required for nesting. The alkali wetlands and lakes found in the northeastern corner of the state generally contain wide, unvegetated, gravelly, salt-encrusted beaches. Rivers that flood adequately can supply open sandbars or gravelly beaches, as can large reservoirs, with their shoreline beaches, peninsulas, and islands of gravel or sand (USFWS 2013a).

Sites with gravel substrate provide the most suitable sites for nesting (MPPRC 1994). One of the most limiting factors to nesting site selection is vegetation encroachment; piping plovers avoid areas where vegetation provides cover for potential predators. Fine-textured soils are easier to treat mechanically than rocky or gravelly soils when vegetation is determined as a limiting factor in an area's ability to provide suitable nesting habitat, but fine soils are not typically a preferred

nesting substrate (MPPRC 1994). Another, and more important, limiting factor in nest site selection is the location of nesting sites in relation to surrounding water levels. Nests are often inundated because water levels are kept unnaturally high throughout the breeding season (and high winds can cause nests to be flooded), or nesting sites are not available, either because of encroaching vegetation or because water levels are so high that beaches are underwater during the early part of, and possibly throughout, the nesting season (MPPRC 1994). Nests are simple scrapes dug into the nest substrate, which may or may not be lined with pebbles (MPPRC 1994, 1995; Haig 1992).

Management

Four specific geographic areas recognized as providing critically important habitat and identified as essential for the conservation of the species have been designated as "Critical Habitat Units" in Montana by USFWS. The designation of critical habitat may require federal agencies to develop special management actions affecting these sites. The four units include prairie alkali wetlands and surrounding shoreline; river channels and associated sandbars and islands; and reservoirs and inland lakes with associated shorelines, peninsulas, and islands (USFWS 2013a). Piping plovers rely on these places for courtship, nesting, foraging, and brood rearing. The first, Unit 1, contains alkali lake and wetland habitat found in Sheridan County. Unit 2 is identified as riverine habitat and includes the Missouri River just south of Wolf Point to the state line, encompassing habitat provided by the sparsely vegetated sandbars and sandy or gravelly beaches along this stretch of the river. Reservoirs, which include similar sandbars and sandy or gravelly beach habitat, define both Units 3 and 4. Unit 3 includes Fort Peck Reservoir, from south of the dam to and including approximately 26 miles (north to south distance) of the length of Dry Arm. Portions of the Bowdoin NWR, the majority of Lake Bowdoin, and the western portion of Dry Lake, were designated as Unit 4. Piping plovers nest at Nelson Reservoir north of the Bowdoin NWR, but are not contained within any of the Critical Habitat Units in the state. This reservoir was excluded from the critical habitat designation because of a Memorandum of Understanding between the Bureau of Reclamation (BOR), USFWS, and the local irrigation districts. The Memorandum, in combination with a biological opinion from the USFWS, guides management actions at this location (USFWS 2013a).

The 2011 international piping plover breeding census detected roughly half of the plovers detected in previous censuses. Censuses are conducted every five years. Significant flooding throughout the nesting range of the plover in this year likely limited nesting and survey detectability.

An interagency team, including FWP, began revision of the 1988 recovery plan in 2010 and it is still being developed. FWP management of piping plovers is also guided by the 2006 species management plan that has goal of 60 breeding pairs over a 10 year running average, distributed across appropriate habitats in Montana. A workshop was held in 2011 to discuss current population status and trend of the Great Plains population and new population monitoring and estimation techniques.

Management Plans
Atkinson, S. J. and A. R. Dood. 2006. Montana Piping Plover Management Plan. Montana Department of Fish, Wildlife & Parks, Bozeman, Montana. 78 pp.

Brown, S., C. Hickey, B. Harrington, and R. Gill, eds. 2001. The U.S. Shorebird Conservation Plan, 2nd ed. Manomet Center for Conservation Sciences, Manomet, Massachusetts.

Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Haig, S., et al. 1988. Recovery plan for piping plovers (*Charadrius melodus*) of the Great Lakes and northern Great Plains. U.S. Fish and Wildlife Service. 160 pp.

Haig, S., et al. 1994. Revised recovery plan for piping plovers (*Charadrius melodus*) breeding on the Great Lakes and northern Great Plains. Technical/agency review draft. Great Lakes/Northern Great Plains Piping Plover Recovery Team. 121 pp.

Piping Plover Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Flooding Water flow and river dynamics	Flooding Water flow and river dynamics	Encourage management of water flows that restore riverine and sandbar habitats and their associated ecosystem processes
Food availability	Food availability	Investigate forage availability
Incompatible grazing practices	Incompatible grazing practices	Provide assistance to private landowners interested in implementing voluntary conservation measures that improve wetland habitat and limit livestock disturbance Work with landowners and land management agencies to ensure species needs are adequately addressed in grazing and RMPs
Human disturbance	Human disturbance	Consider limiting access and certain types of activities when known to be disturbing to nest sites
Land use change: Conversion of uplands to cropland Wetland loss and modification	Land use change: Conversion of uplands to cropland Wetland loss and modification	Manage vegetation encroachment and substrate to increase nest site availability Protect habitat that is at highest risk of conversion to cropland through the possible use of easements and acquisition

Current Impacts	Future Threats	Conservation Actions
		Work with landowners and land management agencies to limit activities that may be detrimental to this species
Nesting and reproductive success	Nesting and reproductive success	Continue regular monitoring of plovers coupled with efforts to standardize monitoring and data collection techniques within and between states/provinces in the Northern Great Plains
Pollution and environmental contaminants	Pollution and environmental contaminants	Work with watershed groups, agencies, organizations, and the public to identify and reduce point source pollution in headwater streams
Increased predator abundance	Increased predator abundance	Continue site specific use of predator deterrents and predator control measures where predators are determined to be a limiting factor Control gull populations in close proximity to plover breeding locations by eliminating nesting habitat for gulls (install structures avoided by gulls) Remove human created structures utilized by predators (e.g. abandoned buildings)

Harlequin Duck (*Histrionicus histrionicus*) State Rank: S2B
Species of Greatest Inventory Need

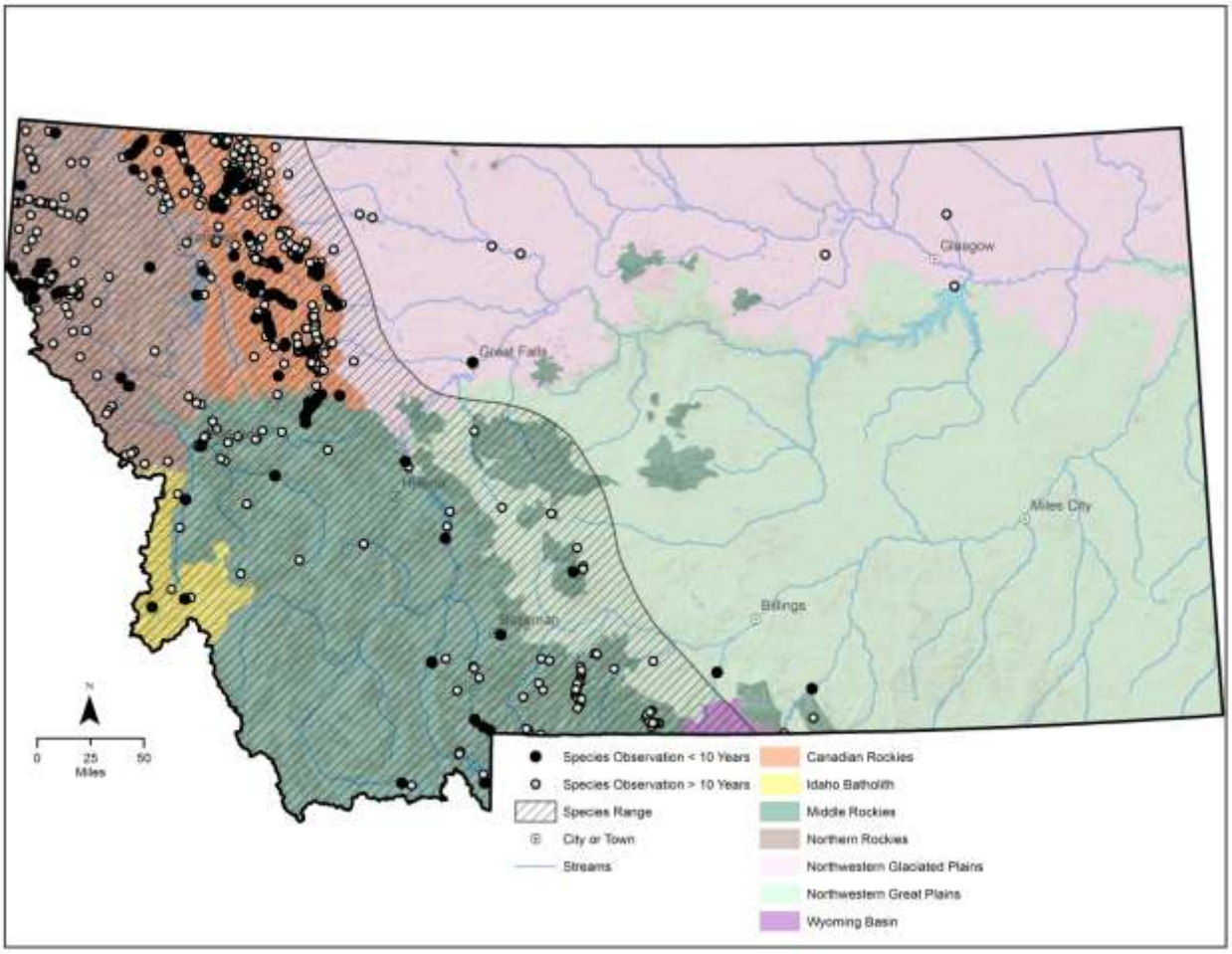

Figure 66. Montana range and observations of the harlequin duck

Habitat

In Montana, most harlequin ducks inhabit fast-moving, low-gradient, clear mountain streams. Overstory in Montana does not appear to affect habitat use: in Glacier National Park, birds used primarily old-growth or mature forest (90%), and most birds in streams on the Rocky Mountain Front were seen in pole-sized timber (Diamond and Finnegan 1993). Banks are most often covered with a mosaic of trees and shrubs, but the only significant positive correlation is with overhanging vegetation (Diamond and Finnegan 1993; Ashley 1994).

Four habitat characteristics were noted at more than 50% of harlequin duck observations in the Tetons (Wallen 1987): 1) streamside perennial shrub vegetation, 2) meandering (braided) channel types, 3) more than three loafing sites per 33 feet, and 4) areas unused by humans. Wallen (1987) postulated that human activities might have a greater influence on breeding success than available habitat. Harlequins feed primarily on crustaceans, mollusks, insects, and a few small fishes.

The strongest stream section factor in Montana appears to be for stream reaches with more than two loafing sites per 33 feet (Kuchel 1977; Diamond and Finnegan 1993; Ashley 1994). Broods may preferentially use backwater areas, especially shortly after hatching (Kuchel 1977), though this is not apparent in data from other studies (Ashley 1994). Stream width ranges from 10-115 feet in Montana. On stream gradients of 7%, occupied stream reaches ranged from 1.8-2.8% (Fairman and Miller 1990), while velocity at 42 harlequin observation points ranged from 2.6-13.5 feet per second (Diamond and Finnegan 1993). Harlequins in Glacier National Park used straight, curved, meandering, and braided stream reaches in proportion to their availability, as was the case for bottom types (Ashley 1994).

Harlequin ducks breed locally on mountain streams in the western part of the state (Reichel and Genter 1995), including the Kootenai, Flathead, Clark Fork, and Blackfoot river drainages. Scattered breeding also occurs along the Rocky Mountain Front and the northern edge of YNP. Harlequin ducks are known to occur in Bonner, Boundary, Clearwater, and Shoshone counties in Idaho. Harlequin ducks in Glacier National Park confine almost all activities to swiftly running waters (90% of area used), but also used cut-off side channels and other backwaters during periods of high water and as brood rearing habitat (Kuchel 1977). Females with broods avoided all areas frequented by humans. Occupied streams in northern Idaho were usually in mature/old-growth western red cedar/western hemlock or Engelmann spruce/subalpine fir stands. Cassirer and Groves (1991) suggested that the presence of mature/old-growth forest in northern Idaho might indicate streams with high-quality, low-sediment loads, intact riparian areas, and relative inaccessibility to humans. Stream sections most suitable for harlequin breeding had gradients less than 10 degrees and banks lined with dense perennial shrubs; breeding and brood rearing occurred on streams with a mean gradient less than 30 degrees. In Idaho hens nest in cliff cavities, tree cavities, and on the ground.

Management Plans

Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Cassirer, E. F., J. D. Reichel, R. L. Wallen, and E. C. Atkinson. 1996. Harlequin Duck (*Histrionicus histrionicus*) conservation assessment and strategy for the U.S. Rocky Mountains. Unpublished technical report, Idaho Department of Fish and Game, Lewiston, Idaho.

North American Waterfowl Management Plan. 1998. Expanding the Vision (update). 32 pp.

Will, G. C. January 1986. Waterfowl, Sandhill Crane and Snipe Management Plan.

Harlequin Duck Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor Outdated survey		Continue survey efforts to find occupied streams throughout its range in the state Develop a statewide population estimate

Current Impacts	Future Threats	Conservation Actions
		Develop monitoring schedule to estimate and evaluate population trend Target species for survey and inventory
Destruction of watershed stability and stream flow regimes	Destruction of watershed stability and stream flow regimes	Maintain and enhance fisheries and aquatic invertebrate populations Maintain backwater areas that are used for brood rearing Maintain large woody debris for nesting sites; in some cases, nest boxes may be erected to supplement natural nesting sites On stream reaches with water control structures, avoid increasing peak flows during nesting season
Incompatible forest management practices	Incompatible forest management practices	Work with landowners and land management agencies to limit activities that may be detrimental to occupied streams
Human disturbance by paddlers (especially in breeding season)	Human disturbance by paddlers (especially in breeding season)	Consider limiting access and certain types of activities when known to be disturbing to nest sites
Impoundments and diversions on breeding streams	Impoundments and diversions on breeding streams	Encourage watershed management practices that maintain habitat quality throughout the nesting season Explore impoundment removal if possible
Road construction/use impacting suitable nesting habitat and causing riparian degradation	Road construction/use impacting suitable nesting habitat and causing riparian degradation	Decommission old/unused roads Manage road density at or below current levels
Water pollution on headwater streams utilized for nesting, brood rearing, and prey base	Water pollution on headwater streams utilized for nesting, brood rearing, and prey base	Work with watershed groups, agencies, organizations, and the public to identify and reduce point source pollution in headwater streams

Current Impacts	Future Threats	Conservation Actions
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routine monitoring of known populations

Black Swift (*Cypseloides niger*) State Rank: S1B
Species of Greatest Inventory Need

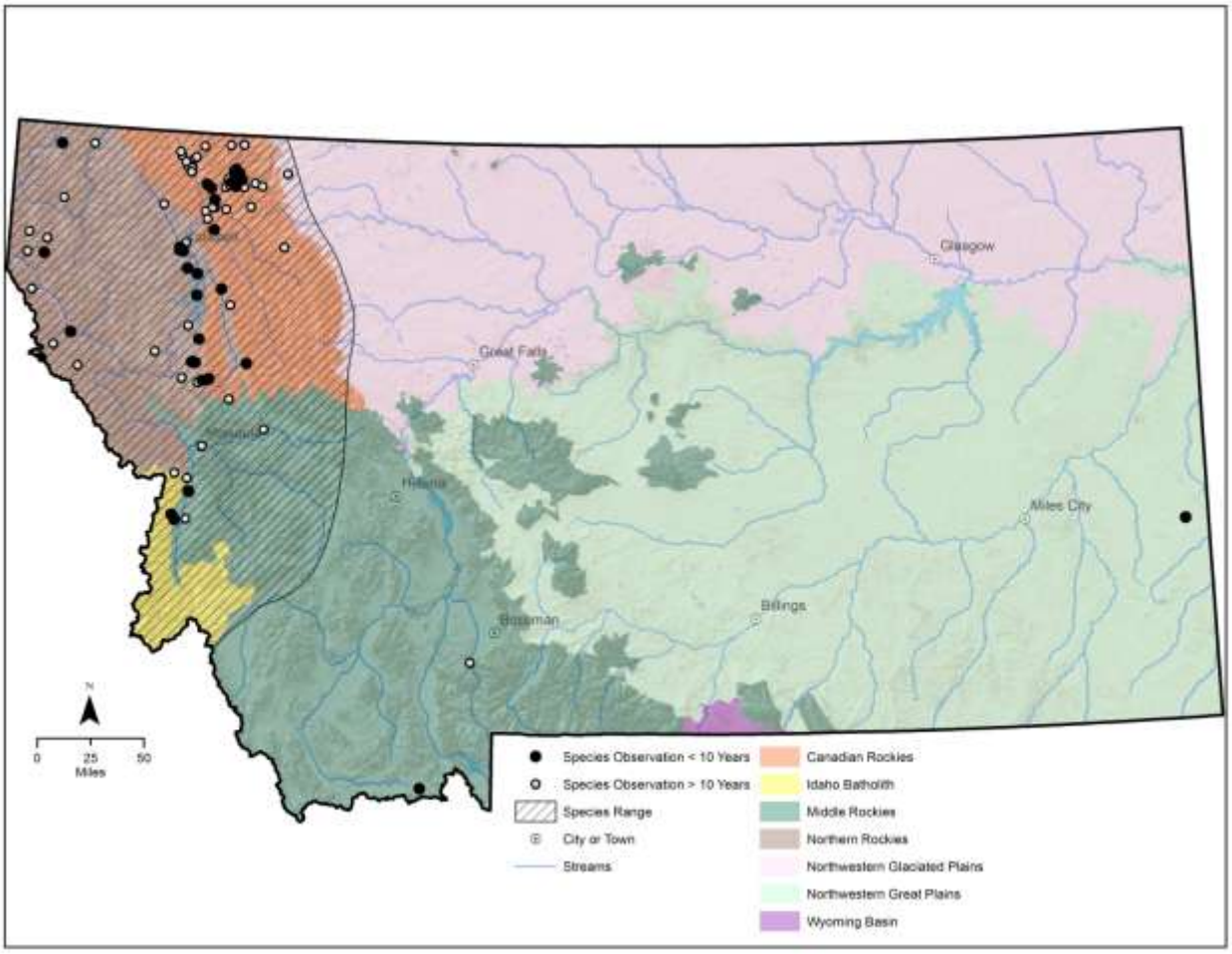

Figure 67. Montana range and observations of the black swift

Habitat

No specific information regarding black swift habitat exists for Montana. Information from other regions indicates they forage over forests and in open areas. They nest behind or next to waterfalls and wet cliffs (Michael 1927, Knorr 1961, Foerster and Collins 1990), on sea cliffs and in sea caves (Vrooman 1901, Legg 1956), and occasionally in limestone caves (Davis 1964). Nests are located in dark, inaccessible sites with an unobstructed flight path (Knorr and Knorr 1990). Nest site persistence and tenacity is almost absolute (Knorr and Knorr 1990). The nest is a cup-like structure of mud, mosses and algae.

Management

No active management currently is in place for black swifts in Montana. Although decreases in water flow and increased recreational use in areas where black swifts nest, or are thought to nest, should be discouraged (Casey 2000). Montana has at least six known nesting colonies (Anderson and Turnock 2012).

Management Plan
Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Black Swift Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor - very few breeding records Lacks a baseline survey		Develop a list of potential waterfall nesting sites and survey Identify, map, and survey microhabitats suitable for black swifts Monitor site occupancy periodically to determine trends Target species for survey and inventory
Altered stream flows due to upstream impacts	Altered stream flows due to upstream impacts	Encourage watershed management practices upstream of suitable waterfalls to maintain habitat quality throughout the nesting season
Dewatering	Dewatering	If known nest sites or waterfalls with a high likelihood of being occupied are threatened by dewatering, work with upstream managers and water-rights holders to maintain adequate stream flows throughout the nesting season
Human disturbance at waterfall nesting sites	Increased recreation	Consider limiting access and certain types of activities when known to be disturbing to nest sites Evaluate human access at known nesting sites
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

Greater Sage-Grouse (*Centrocercus urophasianus*) State Rank: S2

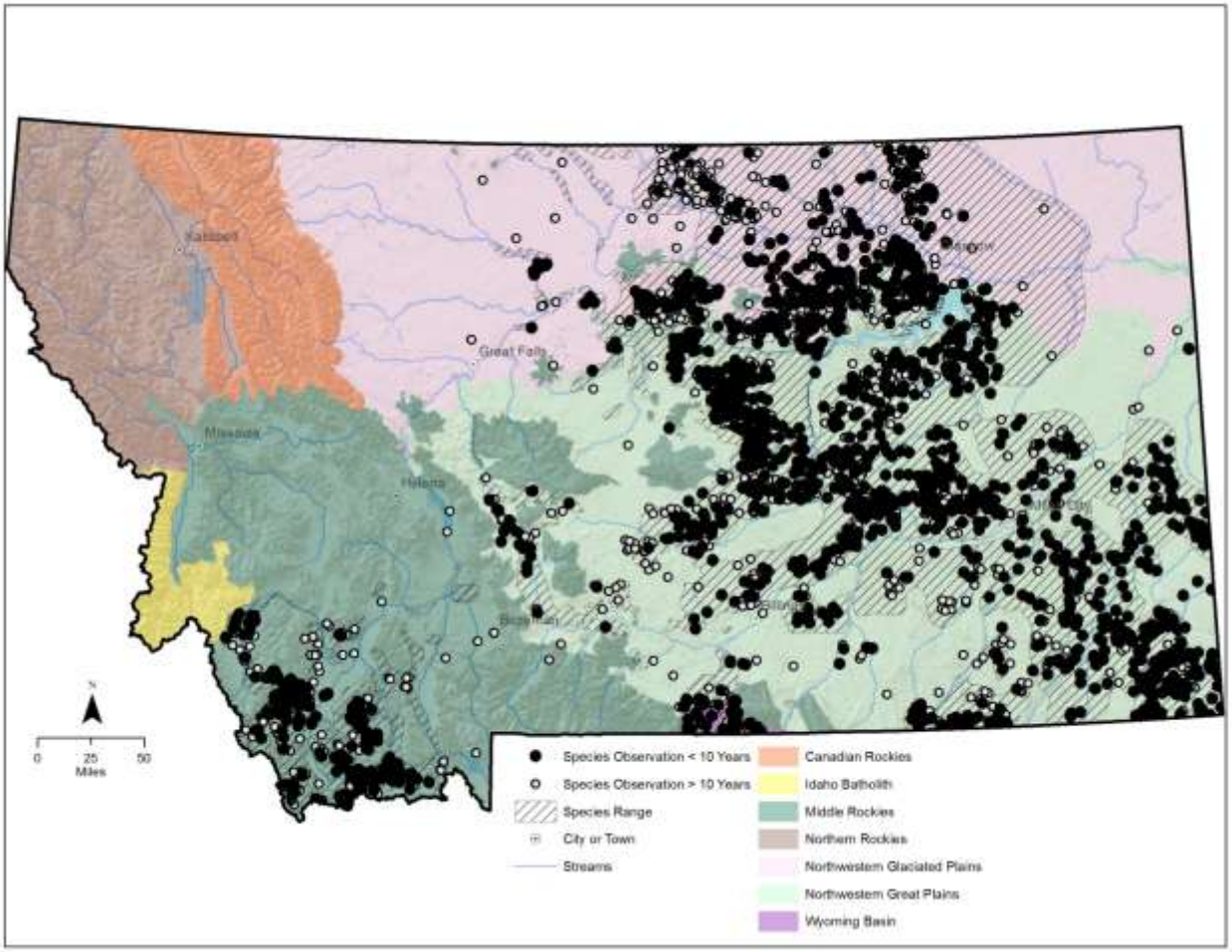

Figure 68. Montana range and observations of the greater sage-grouse

Habitat

Greater sage-grouse select specific habitat characteristics in response to season and life stage. During the spring breeding season, males congregate on display areas to attract females. Leks, which usually consist of clearings surrounded by sagebrush, are revisited annually. The majority of greater sage-grouse nests are located within three miles of a lek. Hens generally nest under stands of sagebrush 12 to 30 inches in height, seeking taller shrubs in a stand for nesting. Residual grass (remaining from the previous growing season) is important for providing nest concealment from predators and the probability of sage-grouse selecting a nesting site increases with increasing residual grass height. After eggs hatch, hens seek relatively open sagebrush stands with more than 15% grass and forb canopy cover. Insects and succulent forbs provide critical food for young broods. As summer progresses and upland forbs desiccate, hens will move broods to moist sites along drainages, ditches, or irrigated meadows/hay crops. In general, moist areas with standing herbaceous cover, for concealing broods from predators, interspersed with sagebrush grasslands provide high-quality brood habitat. Improvements in native grass and forb height and density generally translate into better nest success and brood survival. During late fall and winter, greater sage-grouse feed almost exclusively on sagebrush. Wintering greater sage-grouse typically prefer extensive stands of sagebrush with 10 - 30% canopy cover. However,

sage-grouse will move to areas of exposed sagebrush for food and cover if deep snow conditions are present.

Contiguous large blocks of intact, functional sagebrush grassland are best suited for meeting yearlong needs of greater sage-grouse. Limited seasonal habitats (e.g., nesting cover, brood rearing habitat, winter habitat, etc.) may restrict the abundance, productivity, or occurrence of greater sage-grouse in a particular area.

Management

Greater sage-grouse are managed under state authority, including the statutory authority to regulate harvest. Legislative mandate designates the greater sage-grouse as an upland game bird (87-2-101, MCA).

FWP, in conjunction with federal land management agencies and conservation groups, monitors greater sage-grouse populations during spring through a census of displaying males on leks. The post-harvest telephone survey provides an estimate of harvest for all upland bird species, trends in hunter numbers, and number of birds by species taken by hunters.

In 2008, FWP identified and mapped the areas that are most important to the persistence of sage-grouse populations in the state. These "Core Areas" were based on densities of displaying males and associated habitat. State, federal, and local partners use these Core Areas to focus conservation and management action designed to benefit sage-grouse.

State-funded cooperative habitat projects have the potential to benefit greater sage-grouse. In 1987 the Montana legislature created a process and funding source for FWP to purchase conservation interests in important wildlife habitats through conservation easements and fee title acquisitions. The program generates funding from an earmarked portion of license revenue and provides an innovative tool to protect habitat at the state level. The Upland Game Bird Habitat Enhancement Program was developed through a series of Montana legislative sessions from 1987 to 2001. This program funds habitat enhancements on private and public lands such as vegetation plantings, grazing management systems, and leases. The program helped fund (in combination with the USFWS Landowner Incentive Program) the Montana Sagebrush Initiative, which is a 30-year private land lease program designed to conserve high-priority sagebrush grasslands from prescribed fire, herbicide applications, plowing, and other practices intended to reduce or eliminate sagebrush and forbs.

Federally-funded cooperative habitat projects are also available through the NRCS Sage Grouse Initiative. This initiative accesses several different funding sources for sagebrush restoration, enhancement, and conservation on private lands. Priority projects for these funds are located within FWP's sage-grouse Core Areas. Other federal land management agencies (i.e., BLM, USFS) also prioritize management for sage-grouse within Core Areas.

On March 5, 2010, USFWS determined that the greater sage-grouse warrants protection under the Endangered Species Act (ESA), but that listing the species under the Act is precluded by the need to address other listing actions of a higher priority.

Management Plans
Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Montana's Greater Sage-Grouse Habitat Conservation Advisory Council. 2014. DRAFT Greater sage-grouse habitat conservation strategy. 73 pp.

Montana Sage Grouse Work Group. 2005. Management plan and conservation strategies for greater sage-grouse in Montana- Final Montana Sage Grouse Work Group. 200 pp.

Range-wide Interagency Sage-Grouse Conservation Team. 2012. Near-term Greater Sage-grouse Conservation Action Plan. Greater Sage-grouse Executive Oversight Committee and Sage-grouse Task Force.

Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Inigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, and T. C. Will. 2004. Partners in Flight North American Landbird Conservation Plan. Cornell Lab of Ornithology. Ithaca, NY.

Stiver, S. J. A.D. Apa, J. R. Bohne, S. D. Bunnell, P. A. Deibert, S. C. Gardner, M. A. Hilliard, C. W. McCarthy, and M. A. Schroeder. 2006. Greater Sage-grouse Comprehensive Conservation Strategy. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, WY.

U.S. Fish and Wildlife Service. 2013. Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report. U.S. Fish and Wildlife Service, Denver, CO.

Greater Sage-Grouse Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Fragmentation of sagebrush grasslands (e.g., energy development, power lines, roads, urban sprawl)	Fragmentation of sagebrush grasslands (e.g., energy development, power lines, roads, urban sprawl)	Cluster development and use existing corridors for new infrastructure to minimize fragmentation Follow recommendations in FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (In prep) Follow recommendations in FWP's *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep)

Current Impacts	Future Threats	Conservation Actions
		Minimize new surface disturbance by adhering to thresholds as defined in relevant management plans Follow recommendations in the *Greater Sage-Grouse Habitat Conservation Strategy* (Montana's Greater Sage-grouse Habitat Conservation Advisory Council 2014) when finalized
Incompatible grazing practices	Incompatible grazing practices	Support livestock grazing management that maintains or improves native rangeland integrity and provides standing herbaceous cover, important for nesting and brood rearing Support research evaluating livestock grazing systems that enhance sage-grouse habitat features and ultimately sage-grouse populations
Habitat conversion	Habitat conversion	Actively engage local working groups, organizations, and agency partnerships to promote and expand greater sage-grouse conservation Follow actions set out in the *Greater Sage-Grouse Habitat Conservation Strategy* (Montana's Greater Sage-grouse Habitat Conservation Advisory Council 2014) when finalized Promote conservation of intact sagebrush grassland landscapes through incentives and easements Provide incentives to maintain grazed grasslands over conversion to croplands

Current Impacts	Future Threats	Conservation Actions
		Work with landowners and land management agencies to limit activities that may be detrimental to this species
Invasive plant species	Invasive plant species	Apply appropriate range management practices to reduce presence and spread of noxious and invasive plant species
Rangeland treatments (e.g., prescribed fire, spraying)	Rangeland treatments (e.g., prescribed fire, spraying)	Apply herbicides selectively (i.e., no broadcast application) Consider research on the use of fire to increase stand diversity (forbs) and productivity of invertebrates, especially where brood survival is low due to lack of food resources; any fire use must be carefully evaluated
West Nile virus	West Nile virus	Follow BMPs designed to minimize habitat for the mosquitoes vectors of West Nile virus when constructing new water structures
Fences	Fences	Mark fences to reduce collisions
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue monitoring of known populations Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary

Sharp-tailed Grouse (*Tympanuchus phasianellus*)* State Rank: S1, S4

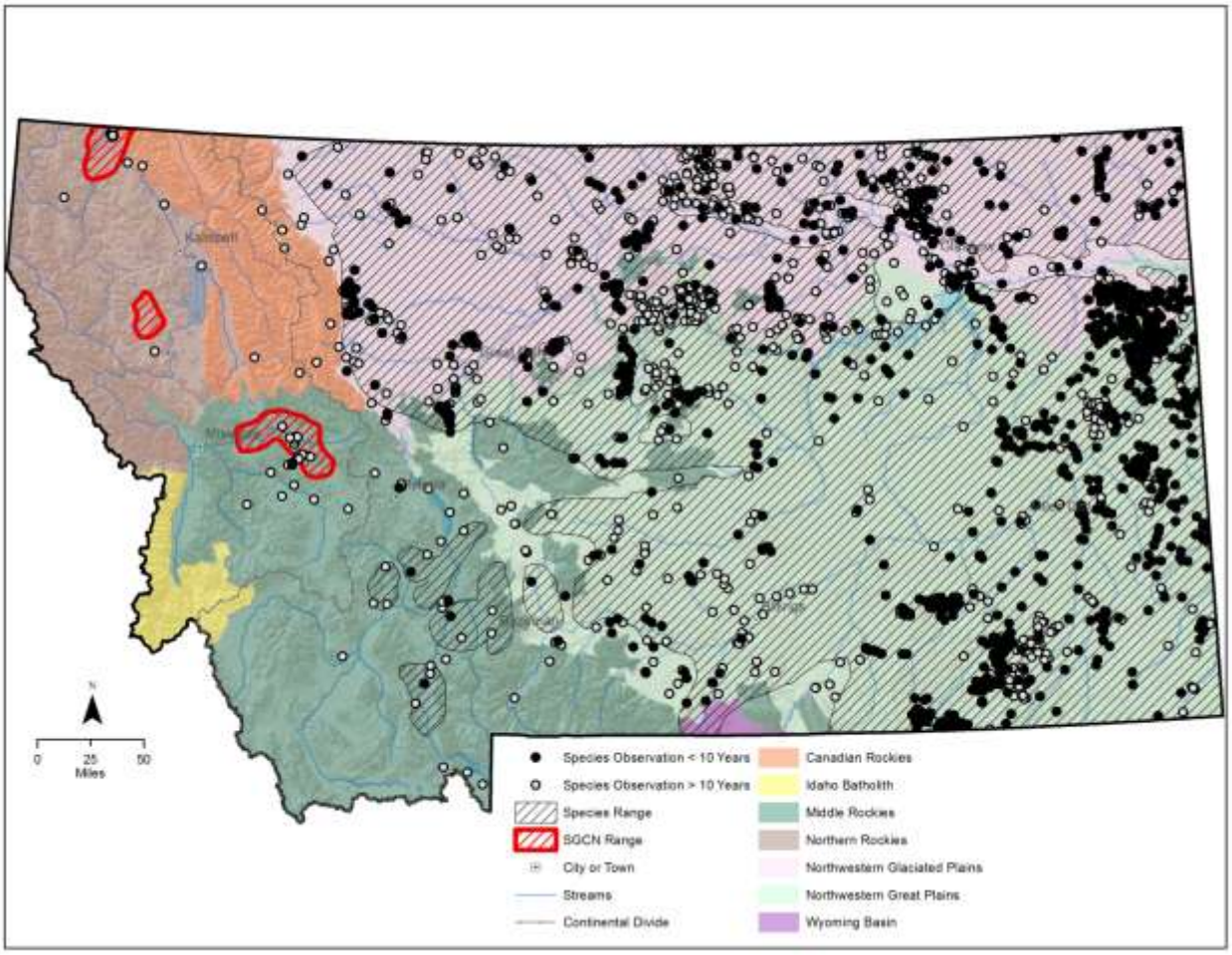

Figure 69. Montana range and observations of the sharp-tailed grouse

Habitat

Sharp-tailed grouse habitat is primarily grasslands interspersed with shrub and brush-filled coulees. They prefer stands of inter-mixed tree and shrub grasslands. With high population, they spread into islands of native grassland, usually along drainages surrounded by grain fields. Sharp-tailed grouse persist only on native bunchgrass-shrub stands. In Idaho, Saab and Marks (1992) found birds selected big sage habitat types during summer. They appeared to prefer range habitats that were in good condition.

Until recently, sharp-tailed grouse in Montana were found west of the Continental Divide in larger mountain valleys with extensive native bunchgrass-shrub stands. However, they have now apparently been extirpated, or nearly extirpated, from this historic range (Hoffman and Thomas 2007).

Management

Sharp-tailed grouse in western Montana were originally thought to be Columbian sharp-tailed grouse. However, recent genetics studies have shown that the historic populations in western Montana were Plains sharp-tailed grouse, rather than Columbian sharp-tailed grouse (Warheit

and Dean 2009). Current populations east of the Continental Divide have a state rank of S4 and are not a SGCN and are not addressed in this SWAP. Only the populations west of the Continental Divide that are SGCN with a state rank of S1 are addressed by this SWAP. However, FWP staff will be recommending that the SOC committee review the status of this species and increase the state rank, thereby removing it from the SOC and SWAP SGCN lists.

Careful population counts must be made, as well as counts of nesting sites and breeding success. Counting individuals at leks is the easiest way to monitor population trends. Wildlife agencies monitor leks because their size and density provide an index to populations and indirectly reflect changes in habitat quality (Cannon and Knopf 1981; Giesen and Connelly 1993).

Management Plans
Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Wood, M. 1991. Management plan for Columbian sharp-tailed grouse in western Montana.

Sharp-tailed Grouse Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Conversion of native grassland and shrub/grass communities to agriculture and other unsuitable land uses	Conversion of native grassland and shrub/grass communities to agriculture and other unsuitable land uses	Coordinate with British Columbia to manage suitable habitat along the international Kootenai River valley Protect habitat that is at highest risk of conversion to cropland through the possible use of easements acquisition Provide incentives to maintain grazed grasslands over conversion to croplands Work with landowners and land management agencies to limit activities that may be detrimental to this species
Encroachment of conifers onto grassland habitat	Encroachment of conifers onto grassland habitat	Use prescribed fire to stimulate growth and vigor of deciduous shrubs in wintering areas, as long as a minimum of 10% of habitat will provide shrub cover during the recovery period of the burned area

Current Impacts	Future Threats	Conservation Actions
Incompatible grazing practices	Incompatible grazing practices	Develop livestock management plans, which retain adequate residual cover across the land, and favor maintenance or enhancement of bunchgrass communities, forbs, species diversity, and upland shrubs Work with landowners and land management agencies to ensure species needs are adequately addressed in grazing and RMPs
Human disturbance to leks	Human disturbance to leks	Prohibit physical, mechanical, and audible disturbances within the breeding complex during the breeding season (March to June), if they might impact courtship activities and breeding during the daily display period (within three hours of sunrise and sunset) Protect known lek areas and surrounding habitats within 1.2 miles, and search for new leks in areas with appropriate physiographic and vegetative characteristics including minimizing pesticide use in order to provide an abundance of insects important for growth and survival of young birds
Invasive plant species	Invasive plant species	Apply appropriate range management practices to reduce presence and spread of noxious and invasive plant species Avoid manipulation or alteration of vegetation within the breeding complex (lek and nesting areas) during the nesting period (mid-April to June)

Current Impacts	Future Threats	Conservation Actions
Isolated and extremely small population	Isolated and extremely small population	Evaluate potential for sharp-tailed grouse reintroduction Identify habitat connectivity across the Continental Divide to eastern Montana populations, and enhance/conserve grassland habitats to increase or maintain connectivity Increase abundance and distribution of sharp-tailed grouse with reintroduction program into western Montana Monitor existing SGCN populations to determine if management actions are adequate
Predation on nests by ravens and other predators	Predation on nests by ravens and other predators	Protect, maintain, and enhance winter breeding and nesting habitats near known populations where predators are determined to be a limiting factor

Lewis's Woodpecker (*Melanerpes lewis*) State Rank: S2B

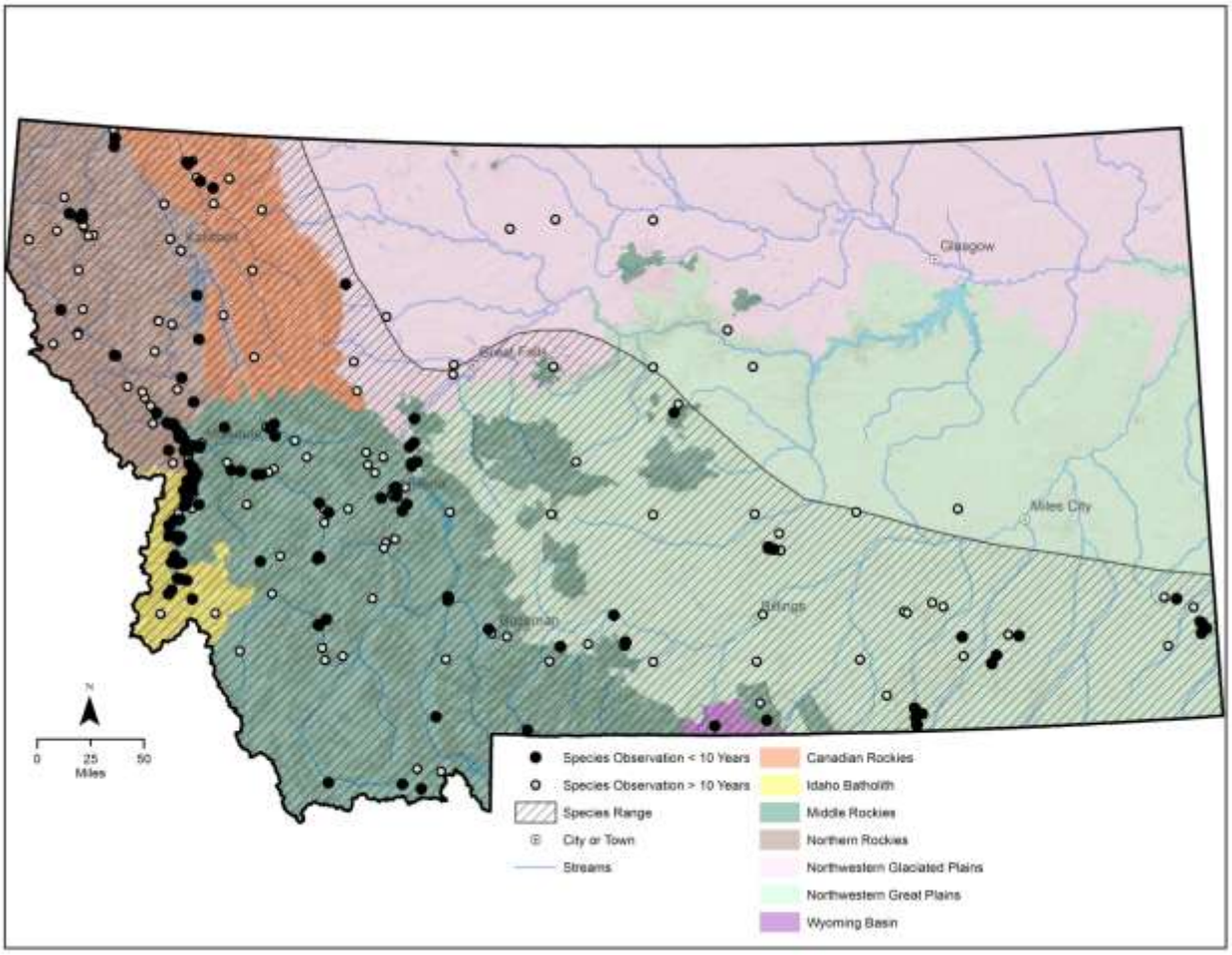

Figure 70. Montana range and observations of the Lewis's woodpecker

Habitat

In the Bozeman area, Lewis's woodpeckers are known to occur in river bottom woods and forest edge habitats (Skaar 1969). Habitat information from other Lewis's woodpecker sources state that the breeding habitat is open forest and woodland, often logged or burned, including oak and coniferous forest; primarily ponderosa pine (*Pinus ponderosa*), riparian woodland, and orchards, and less commonly in pinyon-juniper (*Pinus* spp.-*Juniperus* spp.; American Ornithologists Union 1998). Lewis's woodpecker distribution is closely associated with open ponderosa pine forest in western North America, and is strongly associated with fire-maintained old-growth ponderosa pine (Diem and Zeveloff 1980, Tobalske 1997, Saab and Dudley 1998).

Important habitat features include an open tree canopy, a brushy understory with ground cover, dead trees for nest cavities, dead or downed woody debris, perch sites, and abundant insects. Lewis's woodpeckers use open ponderosa pine forests, open riparian woodlands dominated by cottonwood (*Populus* spp.), and logged or burned pine. They also use oak (*Quercus* spp.) woodlands, orchards, pinyon-juniper woodlands, other open coniferous forests, and agricultural lands. Apparently the species prefers open ponderosa pine at high elevations and open riparian forests at lower elevations (Bock 1970, Tobalske 1997). In the Blue Mountains of Oregon, they

showed a preference for open stands near water (Thomas et al. 1979). Because the species catches insects from the air, perches near openings or in open canopy are important for foraging habitat (Bock 1970, Tobalske 1997).

Lewis's woodpeckers often use burned pine forests, although suitability of post-fire habitats varies with the age, size, and intensity of the burn, density of remaining snags, and the geographic region. Birds may move to unburned stands once the young fledge (Block and Brennan 1987, Tobalske 1997, Saab and Dudley 1998). They have been generally considered a species of older burns rather than new ones, moving in several years post-fire once dead trees begin to fall and brush develops, five to 30 years after fire (Bock 1970, Block and Brennan 1987, Caton 1996, Linder and Anderson 1998). However, on a two- to four-year-old burn in Idaho they were the most common cavity-nester, and occurred in the highest nesting densities ever recorded for the species (Saab and Dudley 1998). As habitat suitability declines, however, numbers decline. For example, in Wyoming, the species was more common in a seven-year-old burn than in a 20-year-old burn (Linder and Anderson 1998). Overall, suitable conditions include an open canopy, availability of nest cavities and perches, abundant arthropod prey, and a shrubby understory (Linder and Anderson 1998, Saab and Dudley 1998).

Unlike other woodpeckers, Lewis's woodpeckers are not morphologically well adapted to excavate cavities in hard wood. They tend to nest in natural cavities, abandoned northern flicker (*Colaptes auratus*) holes, or previously used cavities, three to 170 feet above ground. Sometimes they will excavate a new cavity in a soft snag, dead branch of a living tree, or rotting utility pole (Harrison 1979, Tobalske 1997). The mated pair may return to the same nest site in successive years. On partially logged burns with high nesting densities in Idaho, nest sites were characterized by the presence of large, soft snags and an average of 25 snags per acre that had more than nine-inch diameter at breast height (Saab and Dudley 1998).

In late summer, wandering flocks move from valleys into mountains or from breeding habitat to orchards. In winter, they use oak woodlands and nut and fruit orchards. An important habitat feature in many wintering areas is the availability of storage sites for grains or mast, such as tree bark (e.g., bark of mature cottonwood trees) or power poles with desiccation cracks (Bock 1970, Tobalske 1997). In southwestern Arizona and southeastern California, Lewis's woodpeckers may use scrub oak, pecan orchards, and cottonwoods, but more study is needed in this area (Bock 1970). In Mexico, they use open and semi-open woodlands, especially those with oaks (Howell and Webb 1995).

Management

No known active management is ongoing for Lewis's woodpecker in the state. However, management for Lewis's woodpeckers in dry forests fits very well with the management needs for flammulated owls. The landscape-level needs of the flammulated owl would probably accommodate any habitat-area needs of Lewis's woodpeckers. Specific needs of the Lewis's woodpecker at the microsite and site level could be met in the form of interspersed zones of shrubby understory within the overall habitat mosaic (Casey 2000). Recommendations for snag retention in forest management plans have been developed (Thomas et al. 1979). To sustain a maximum density of Lewis's woodpeckers (6.7 pairs per acre) a density of 101 snags per 100 acres, more than 12 inches in diameter at breast height, and more than 30 feet in height must be

maintained in ponderosa pine, riparian cottonwood, and mixed-conifer forest (Thomas et al. 1979).

In Montana, the strongest populations are found within two riverine IBAs, the Bitterroot River and Clark Fork River/Grass Valley IBAs. Conservation efforts should be strengthened within these IBAs and additional IBA acreage may be considered (if data support).

Management Plan

Casey, D. 2000. Partners in Flight Bird Conservation Plan Montana. 279 pp.

Lewis's Woodpecker Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Development	Development	Encourage use of FWP's voluntary subdivision recommendations (FWP 2012a) with local planners Review subdivision requests and make recommendations based on FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a)
Habitat loss: Loss of riparian habitat Loss or alteration of open ponderosa pine stands Snag loss/removal	Continued habitat loss: Logging Loss of riparian habitat Loss or alteration of open ponderosa pine stands Snag loss/removal	In dry forests with potential habitat, maintain or restore open conditions following management recommendations for flammulated owls (Fylling 2013) In cottonwood bottomlands retain snags, open forest structure, and shrub cover for a robust arthropod community (Fylling 2013) Manage ponderosa pine stand densities to restore or maintain open, park-like conditions through selective harvest techniques Manage water releases to mimic flooding and help with cottonwood recruitment in riparian areas Provide outreach to private landowners on the importance of retaining snags in riparian bottomland habitat

Current Impacts	Future Threats	Conservation Actions
		Remove Russian olive, salt cedar, and other invasive species from shelterbelts associated with riparian areas Retain sufficient large snags in order to provide soft snags over time Review existing data and consider additional surveys in dry forest and post-fire habitats to determine the importance of these habitats for Montana populations Create snags in managed forest stands (ponderosa pine, riparian)
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routine monitoring of known populations
	Nest site competition	Appropriate conservation action(s) unknown

Fish

Shortnose Gar (*Lepisosteus platostomus*) State Rank: S1

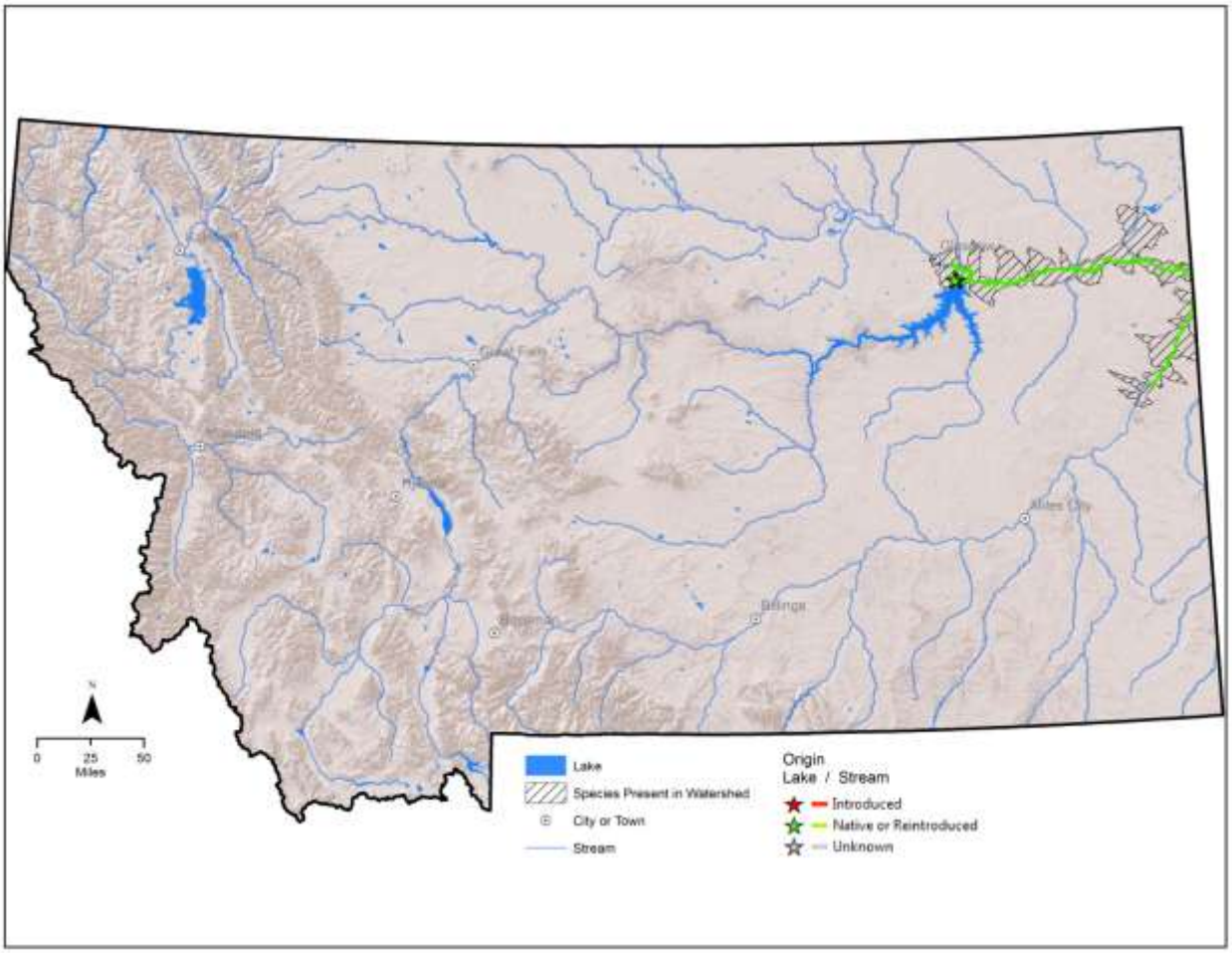

Figure 71. Distribution of shortnose gar

Habitat

Due to its limited distribution little is known about the shortnose gar within Montana. The shortnose gar is typically found in large rivers, quiet pools, backwaters, and oxbow lakes. It has a higher tolerance to turbid water than the other four gar species found in North America (AFS website 2013). Gar also have the unique ability to supply a highly vascularized swim bladder with supplemental oxygen by engaging in a behavior of "breaking," where air is gulped at the surface (Pflieger 1975). This allows gar to occupy waters with extremely low dissolved oxygen concentrations, which would not be suitable for most other fish inhabitation.

Management Plan

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Shortnose Gar Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Backwater habitat filled in for agriculture and modified by lack of channel maintenance flows	Backwater habitat filled in for agriculture and modified by lack of channel maintenance flows	Protect the current habitat integrity of the Fort Peck Dredge Cuts
Cold water release, lack of turbidity, and artificial hydrograph below Fort Peck Dam may inhibit abundance in the lower Missouri River	Cold water release, lack of turbidity, and artificial hydrograph below Fort Peck Dam may inhibit abundance in the lower Missouri River	Manage water regimes to better represent natural water regimes
Limited information in Montana	Limited information in Montana	Consider preparing a management plan for the shortnose gar or include it into other comprehensive taxonomic plans Increase survey and monitoring efforts

Pearl Dace (*Margariscus margarita*) State Rank: S2

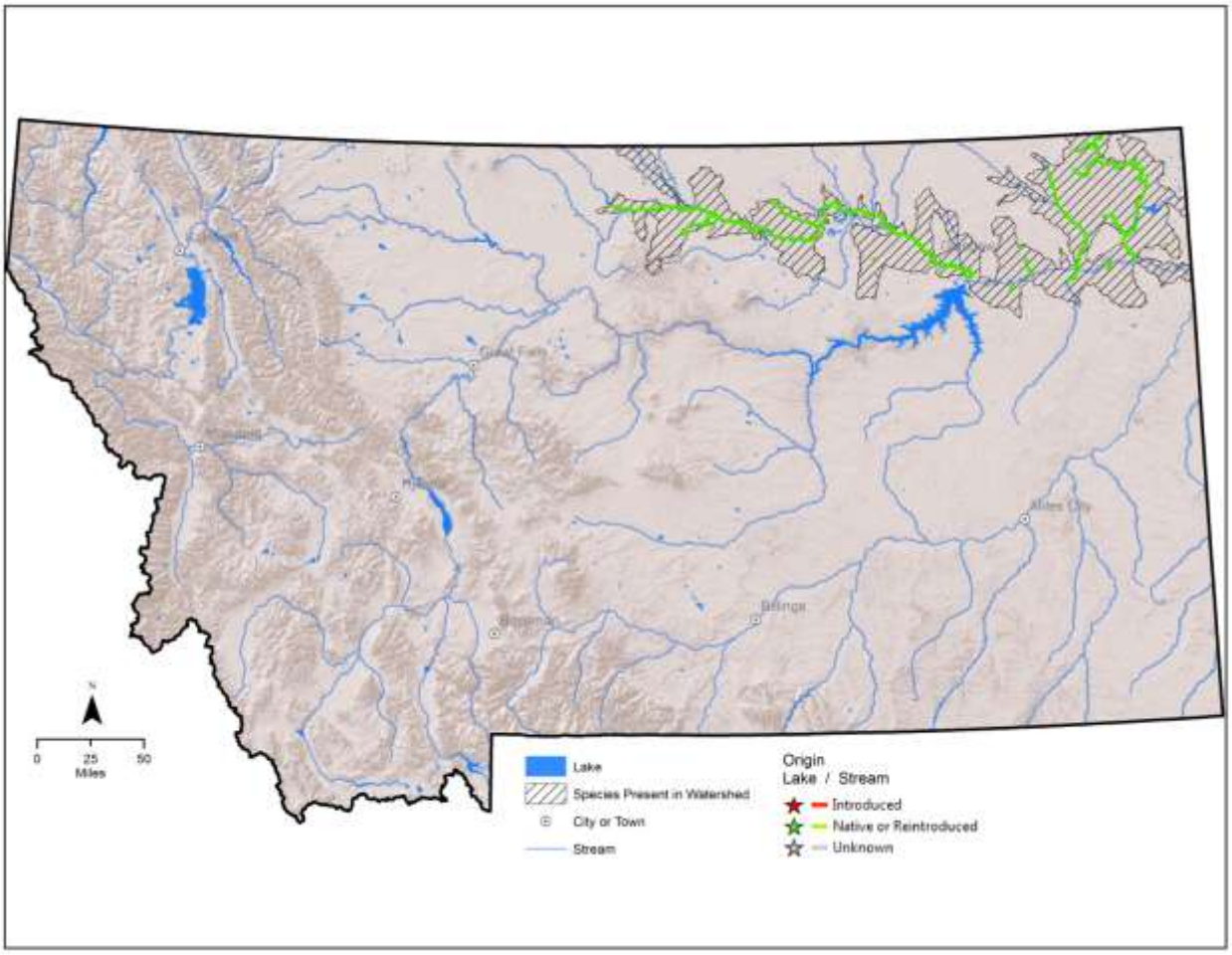

Figure 72. Distribution of the pearl dace

Habitat

Pearl dace occur in lakes, cool bog ponds, creeks, and cool springs (Scott and Crossman 1973). Little habitat-related information exists for this species in Montana. At four stream locations where pearl dace were captured in northeastern Montana, average stream widths ranged from 17.7-38.7 feet, average thalweg depths ranged from 1.3-4.6 feet, substrates ranged from 53%-100% fine substrate (less than 0.06 mm), and aquatic macrophytes were sparse to very heavy (less than 10% to more than 75% coverage; Bramblett, unpublished data). Eleven fish species were associated with pearl dace in seven collections from four sites on four Montana streams.

Pearl dace appear to prefer cool to cold water temperatures. In Canada, pearl dace were more often found to co-occur with brook trout (*Salvelinus fontinalis*) and mottled sculpin (*Cottus bairdi*) at water temperatures of 60.4-61.9 degrees F than with smallmouth bass (*Micropterus dolomieu*) and rock bass (*Ambloplites rupestris*) at 69.4-70.7 degrees F (Becker 1983). The upper lethal temperature for pearl dace was found to be 88.0 degrees F (Becker 1983). In the southernmost part of their range in Maryland and Virginia, pearl dace were found in streams that were cool in summer and warm in winter, with substantial spring-water input (Tsai and Fava

1982). In Montana, pearl dace were captured in streams with daytime water temperatures from July through September ranging from 49.3-73.6 degrees F (Bramblett, unpublished data).

Management Plan

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Pearl Dace Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Anthropogenic stressors that increase water temperatures Diversion impacts and high water demands from oil and gas, livestock, agriculture, municipal developments	Anthropogenic stressors that increase water temperatures	Work with landowners and land management agencies to limit activities that may be detrimental to this species Work with landowners and conservation districts to use BMPs on their land
Limited distribution in Montana renders it vulnerable to extirpation from the state	Limited distribution in Montana renders it vulnerable to extirpation from the state	Consider preparing a management plan for the pearl dace or include it into other comprehensive taxonomic plans Fish surveys supported by voucher specimens should be conducted in streams across the range (including areas of historical records) of the species to better determine its geographic range
Populations vulnerable to predation and competition	Populations vulnerable to predation and competition	Review opportunities to reduce pike abundance in prairie streams where native minnows are present Continue to scrutinize any northern pike stockings, which currently only occur in large multi species reservoirs (Fort Peck Reservoir)
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Maintain connectivity Monitor habitat changes and address climate impacts through adaptive management as necessary

Current Impacts	Future Threats	Conservation Actions
		Routinely monitor known populations
	Collection by anglers seeking bait minnows	Educate anglers on species identification and importance of native fish

Sicklefin Chub (*Hybopsis meeki*) State Rank: S1

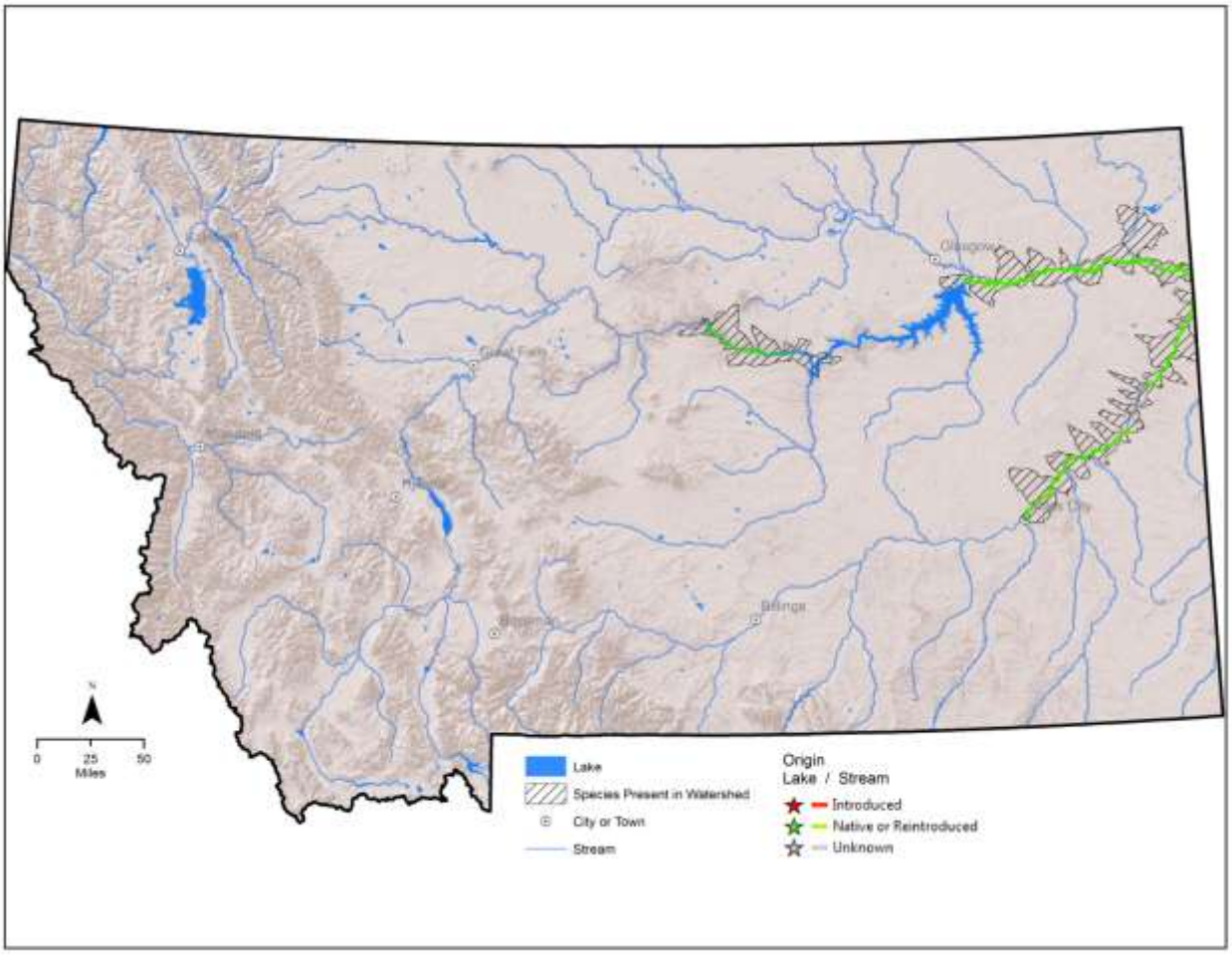

Figure 73. Distribution of sicklefin chub

Habitat

Sicklefin chub are strictly confined to the main channels of large, turbid rivers where they live in a strong current over a bottom of sand or fine gravel (Pflieger 1975).

Unlike the sturgeon chub, all of the Montana captures have been from only the Missouri and Yellowstone rivers, indicating a strong preference for large turbid rivers (AFS website 2013).

Management Plan

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Sicklefin Chub Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Channelization of the Missouri River due to irrigation operations and development	Channelization of the Missouri River due to irrigation operations and development	Work with landowners and other agencies to limit activities that may be detrimental to this species

Current Impacts	Future Threats	Conservation Actions
Decreased range and abundance of prey aquatic insect larvae due to dam construction	Decreased range and abundance of prey aquatic insect larvae due to dam construction and snag removal	Increase monitoring and survey efforts in eastern Montana to monitor population trends and range expansion or loss and collect additional information on life history and ecology Continue monitoring efforts in the Missouri River downstream of Fort Peck Dam
Habitat alteration by dam operations, reducing turbidities, and/or altering temperature and flow regimes Currently, the largest threat is cold water pollution from Fort Peck dam which limits habitat for species in the Missouri River	Habitat alteration by dam operations, reducing turbidities, and/or altering temperature and flow regimes	Restore more natural flow and temperature conditions in the rivers below mainstream and tributary dams
	Predation by non-native fish	Determine the effect of non-native fish on sicklefin chub
	Removal of wild individuals used for bait fish	Educate anglers on the identification and importance of native species

Sturgeon Chub (*Hybopsis gelida*) State Rank: S2S3

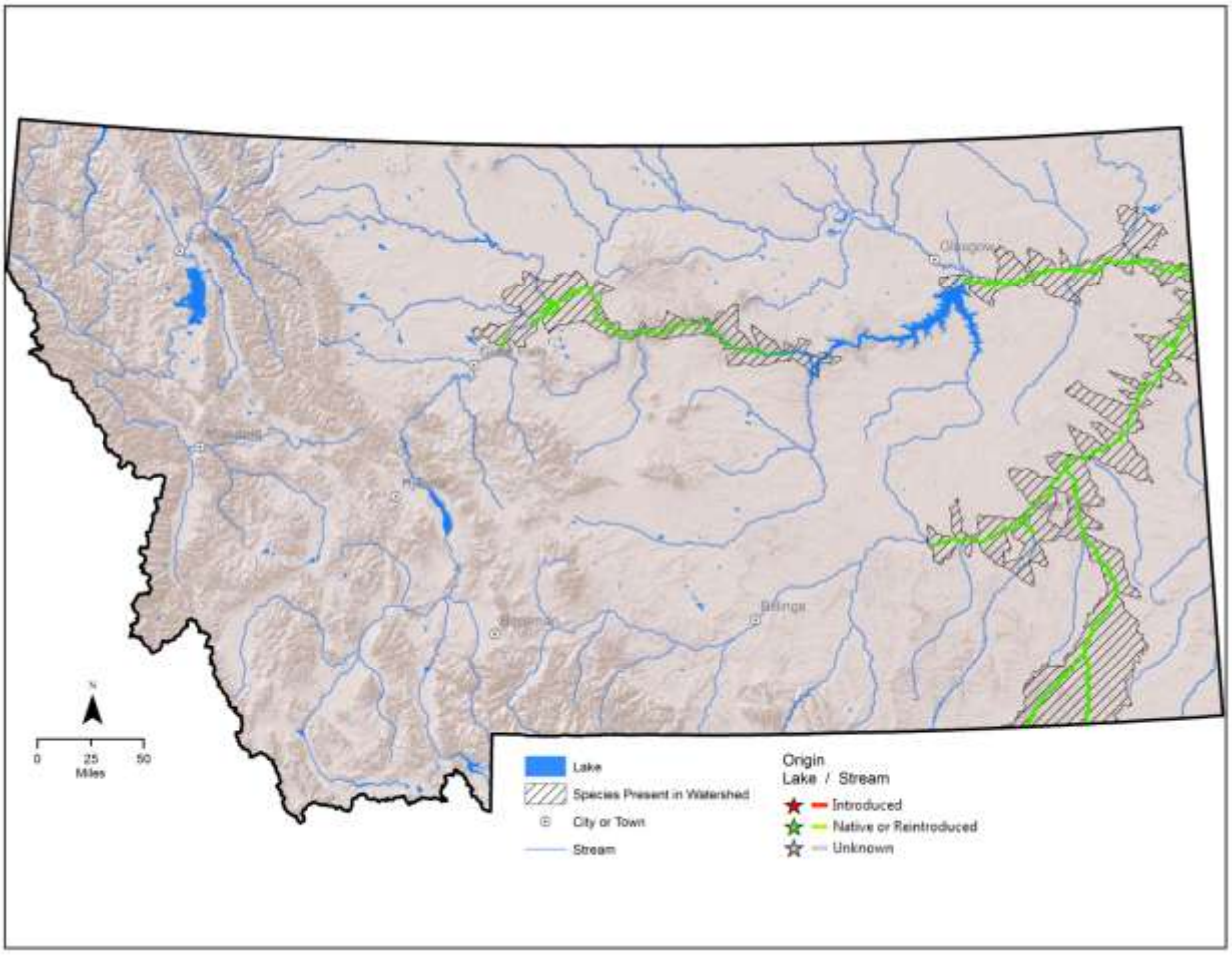

Figure 74. Distribution of sturgeon chub

Habitat

Sturgeon chub are highly adapted to life in turbid waters. Chub are most closely associated with sites having moderate currents and depths and sand or rock substrates (Baxter and Simon 1970; Brown 1976; Lee et al. 1980). In the Powder River, sturgeon chub were taken most frequently at sites with depths less than 20 inches and depth velocities of less than 35.4 inches/second at 23.6 inches in depth (Stewart 1981; Werdon 1992; Gould unpublished data).

Management Plan

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Sturgeon Chub Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Channelization of the Missouri River due to irrigation operations and development	Channelization of the Missouri River due to irrigation operations and development	Work with landowners and other agencies to limit activities that may be detrimental to this species

Current Impacts	Future Threats	Conservation Actions
Decreased range and abundance of prey aquatic insect larvae due to dam construction Food web disruption due to impoundments on mainstem rivers	Decreased range and abundance of prey aquatic insect larvae due to dam construction and snag removal	Increase monitoring and survey efforts in eastern Montana designed to monitor population trends and range expansion or loss and collect additional information on life history and ecology Continue monitoring efforts in the Missouri River downstream of Fort Peck Dam
Habitat alteration by dam operations, reducing turbidities and/or altering temperature and flow regimes Currently, the largest threat is cold water pollution from Fort Peck dam which limits habitat for species in the Missouri River	Habitat alteration by dam operations, reducing turbidities and/or altering temperature and flow regimes	Restore more natural flow and temperature conditions in the rivers below mainstream and tributary dams.
	Predation by non-native fish	Determine the effect of non-native fish on sturgeon chub
	Removal of wild individuals used for bait fish	Educate anglers on the identification and importance of native species

Paddlefish (*Polyodon spathula*) State Rank: S2

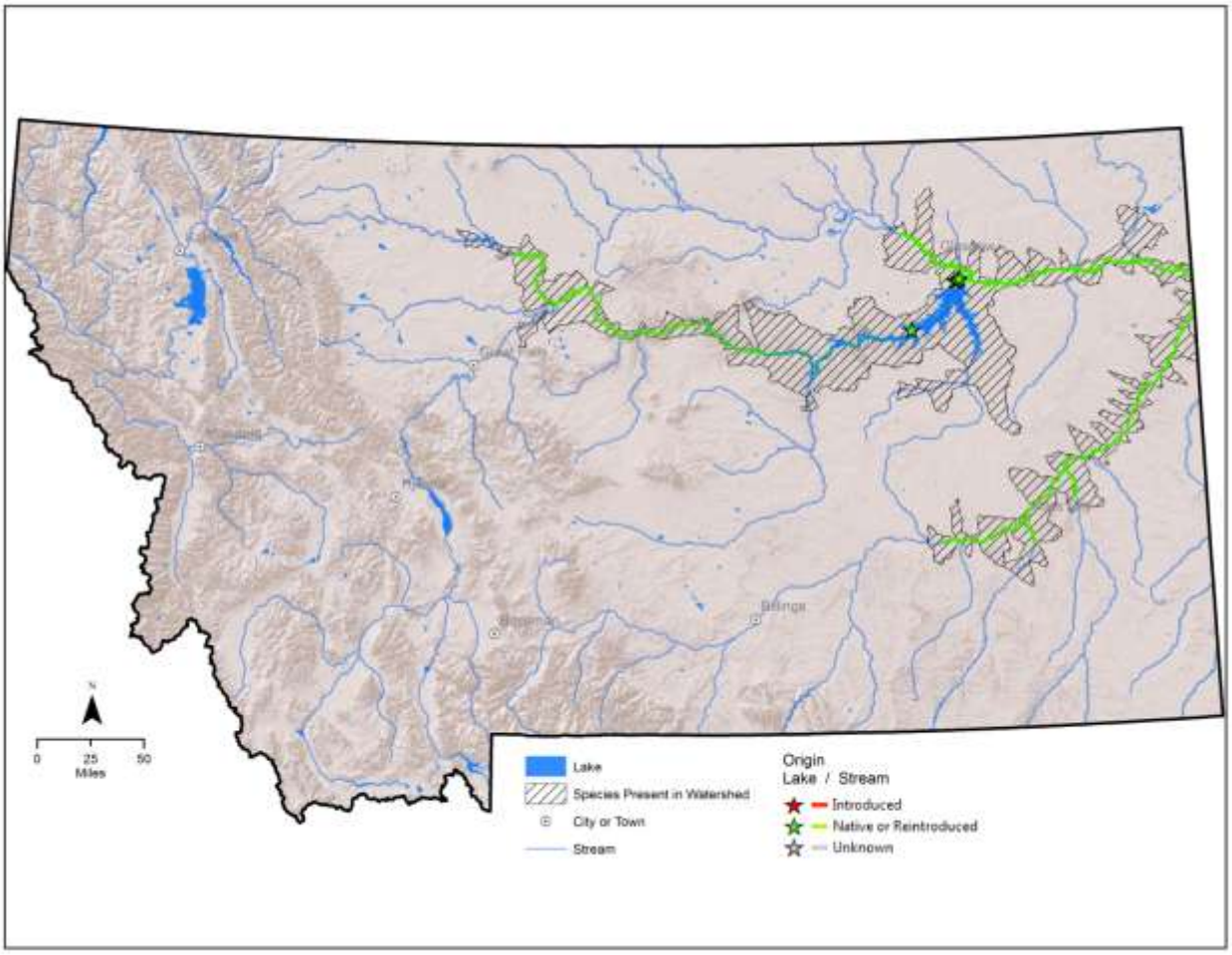

Figure 75. Distribution of paddlefish

Habitat

The paddlefish is a large river species that utilizes a wide variety of habitats seasonally and at different life stages. Optimal spawning habitat consists mainly of turbid, faster flowing main channel areas with gravel substrates, whereas feeding habitat is typically slower moving backwaters, side channels, and sloughs where their zooplanktonic food is more abundant. In the twentieth century, Montana's paddlefish have adapted successfully to feeding in Missouri River reservoir habitat, resulting in an increased population size over historical (pre-reservoir) levels (Scarnecchia et al. 1996). Young-of-the-year paddlefish utilize turbid headwater reaches of Fort Peck Reservoir (Kozfkay and Scarnecchia 2002) and Lake Sakakawea (Fredericks and Scarnecchia 1997) for particulate feeding. Larger juveniles and adults large enough to more effectively avoid predation (Parken and Scarnecchia 2002) filter feed throughout the reservoirs.

Management

Paddlefish stocks in Montana are adequate to support a recreational fishery. Current research and monitoring are designed to prevent over-harvest and insure a sustainable wild fishery. Paddlefish are managed as two naturally-reproducing stocks: the Yellowstone River and Missouri below Fort Peck Dam, and the Missouri River above Fort Peck Dam. The Yellowstone stock is

managed cooperatively through a joint management plan with the State of North Dakota. Harvest of this recreational fishery is accomplished by snagging, and targets for each stock are set on an annual basis. Since 2010, the target has been 1,000 fish for the Yellowstone/lower Missouri and 500 fish for the Missouri upstream of Fort Peck Reservoir. The harvest is closely monitored by biologists and creel clerks and can be closed immediately or with 24 hours notice, depending on the location. One unique aspect of the Yellowstone fishery is the presence of a caviar operation, which is run by the Glendive Chamber of Commerce. Proceeds from this operation are divided between the City of Glendive and FWP, with the state's share going to help fund research and management activities for the species.

The population and demographics of each stock is recalculated annually for the purpose of evaluating the sustainability of the harvest. Details of the management goals and activities can be found in the interstate management plan, *Management Plan for Montana and North Dakota Paddlefish Stocks and Fisheries* (North Dakota Game and Fish Department and Montana Fish, Wildlife & Parks 2008).

Management Plans
Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

North Dakota Game and Fish Department and Montana Department of Fish, Wildlife & Parks. 2008. Management Plan for North Dakota and Montana Paddlefish Stocks and Fisheries. Bismarck, North Dakota and Helena, Montana.

Paddlefish Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Current operations of mainstem dams negatively influences all life stages and influences the amount of available habitat Cold water pollution from Fort Peck reservoir negatively impacts spawning and incubation, larval, and young of year growth	Future operations of mainstem dams could negatively influence all life stages and influence the amount of available habitat Cold water pollution from Fort Peck reservoir negatively impacts spawning and incubation, larval, and young of year growth	Continue to work with federal agencies to develop operational guidelines for mainstem dams that minimize impacts to paddlefish populations
Loss of spawning habitat	Loss of spawning habitat	Maintain instream flows and spawning habitat in large rivers (especially the Yellowstone River and Missouri River above Fort Peck Reservoir) Protect remaining spawning habitat

Current Impacts	Future Threats	Conservation Actions
		Operate Fort Peck Dam to mimic spring runoff and stimulate paddlefish spawning
Water depletions reduce rearing habitat	Water depletions reduce rearing habitat	Increase reservoir water retention during times of drought
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Maintain connectivity Routinely monitor known populations
	Illegal harvest Overfishing	Continue sustainable management practices by FWP Continue to enforce existing paddlefish regulations
	Potential introduction of exotic competitors (e.g., bighead carp (*Aristichthys nobilis*))	Improve public awareness of paddlefish conservation concerns and impacts of non-native species

Sauger (*Sander canadensis*) State Rank: S2

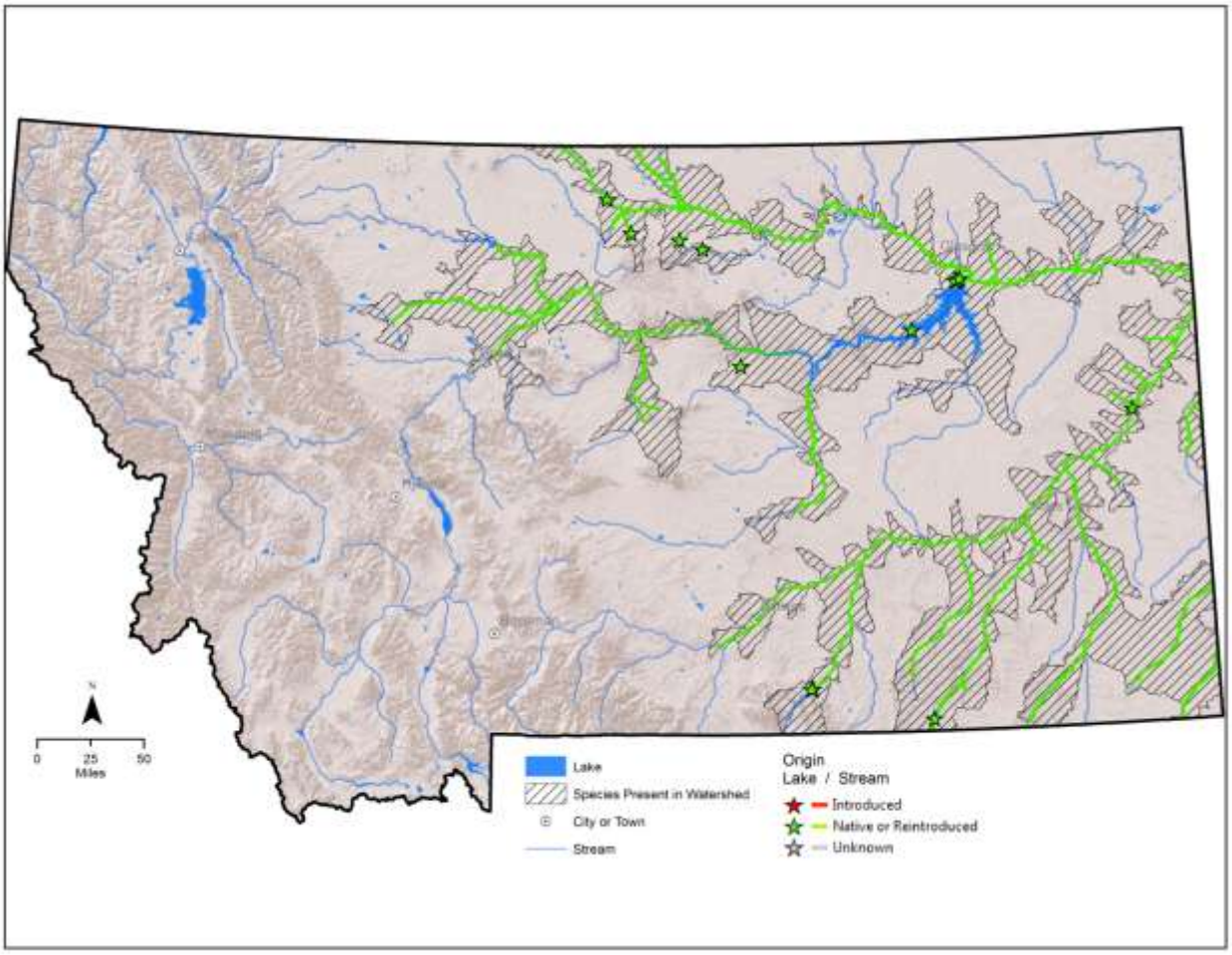

Figure 76. Distribution of sauger

Habitat

Sauger typically occur in large turbid rivers and shallow turbid lakes (Becker 1983). Turbidity is an important delineator of suitable habitat for sauger. Physiological adaptations, such as a highly advanced light-gathering retina, allow sauger to thrive in low-light environments (Ali and Anctil 1977; Crance 1987). At cool water mesotherms, sauger have a fairly wide range of thermal tolerance with occupied temperatures ranging from 33.8-86.0 degrees F and a physiological optimum of 64.4-75.2 degrees F (Crance 1987; Carlander 1997).

Sauger are heavily dependent throughout their life histories on unimpeded access to the wide diversity of physical habitats that are present in large river systems. They are considered to be the most migratory percid (Collette 1977). Their migratory behavior, which is primarily related to spawning, is well documented throughout their range with annual movements of up to 373 miles between spawning and rearing habitats (Nelson 1968; Collette et al. 1977; Penkal 1992; Pegg et al. 1997; Jaeger 2004). Sauger are highly selective for spawning sites and commonly travel long distances to aggregate in a relatively few discrete areas to spawn (Nelson 1968; Nelson 1969; Gardner and Stewart 1987; Penkal 1992). Although primary stem spawning does occur (Jaeger 2004), it has been suggested that sauger populations are strongly reliant on access to large

tributaries for spawning (Nelson 1968; Gardner and Stewart 1987; Penkal 1992; Hesse 1994; McMahon 1999). Spawning locations are associated with unique geomorphic features, such as bluff pools and bedrock reefs, and rocky substrates over which sauger broadcast their eggs (Nelson 1968; Gardner and Stewart 1987; Hesse 1994; Jaeger 2004). During a 10- to 12-day period following emergence, it is thought that larval sauger drift long distances downstream - up to 186 miles - prior to gaining the ability to maneuver horizontally and begin feeding (Nelson 1968; Penkal 1992; McMahon 1999). Juveniles rear in side channels, backwaters, oxbows, and other off-channel habitats during spring and summer before shifting to primary channel habitats in autumn (Gardner and Berg 1980; Gardner and Stewart 1987; Hesse 1994). Adult sauger also use off-channel and channel-margin habitats during the spring and early summer periods of high flow and turbidity, and then move to deeper primary channel habitats in late summer and autumn as decreasing flows and turbidities cause suitable off-channel habitats to become unavailable (Hesse 1994; Jaeger 2004).

Management

Sauger have become rare or absent in a number of larger rivers in Montana (e.g., Judith, Poplar, Big Horn, Tongue rivers), due in part to dams, diversions, and impoundments that have altered temperature, flow regime and favored river habitats, and obstruct migrations. Additional management concerns include entrainment in irrigation canals, streambank alterations, and competition or hybridization with non-native species (e.g., smallmouth bass, walleye). Though it remains widely distributed in the Missouri and Yellowstone rivers, and is common in some locations, the sauger is listed as a Montana SOC owing to an estimated 50% reduction in distribution and widespread threats.

Sauger have received considerable management attention since reductions in abundance were first noted in the drought years in the 1980's. Several studies have since been completed to better understand the species overall status, habitat needs, movement patterns, and threats. These assessments have provided important information on habitat alteration impacts on sauger and other prairie river species (e.g., blue sucker, sturgeon, paddlefish), and recent restoration efforts have been directed towards reducing entrainment in irrigation canals, and promoting movement in the Tongue River through construction of a by-pass channel around an irrigation dam. Modifying dam operations to promote more natural hydrographs and temperatures on mainstem and tributary rivers will continue to be an important but difficult issue to address. Hybridization between sauger and non-native walleye is also a concern, and the issue is being preemptively addressed in the Bighorn River system through stocking of sterile walleye in Yellowtail Reservoir.

On larger rivers, spring and fall aggregations of sauger are popular fisheries, though overall less than 0.2% of statewide angling pressure is targeted towards the species. Standard angling limits are five daily and 10 in possession, though in many locations limits are reduced to one daily and two in possession to protect some sauger populations from the potential stress of over-harvest.

Management Plan

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Sauger Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Barriers that negatively influence spawning movement patterns and larval drift	Barriers that negatively influence spawning movement patterns and larval drift	Improve passage at several irrigation-related migratory barriers Strategically review opportunities to remove or provide passage at impoundments. Install fish screens and return structures to minimize entrapment of fish in irrigation canals
Channelization and loss of side channel habitat for larval and juvenile sauger	Channelization and loss of side channel habitat for larval and juvenile sauger	Work with landowners and conservation districts to implement BMPs through the 310 process to educate them on stream function and the importance of side channel habitat and the negative effects of channelization
Hybridization with walleye	Hybridization with walleye	Continue surveying and monitoring of species Stock triploid walleye where hybridization place sauger populations at risk
Negative interactions with other species such as walleye and smallmouth bass	Negative interactions with other species such as walleye and smallmouth bass	Conduct research to better understand interaction between sauger and non-native species Provide for supplemental stocking of native sauger to replace decreased walleye stocks in the Bighorn Reservoir
Reservoir operations that alter the natural hydrograph	Reservoir operations that alter the natural hydrograph	Regulate flow releases from dams throughout the year to maximize spawning success and year-class strength of sauger (Nelson 1968; Walburg 1972) Preserve natural hydrographs, natural processes of channel formation, and high degrees of connectivity where sauger currently exist

Current Impacts	Future Threats	Conservation Actions
Water withdrawals resulting in low river flows	Water withdrawals resulting in low river flows	Minimize the diversion of water from river channels and limit processes such as channelization and streambank armoring that result in loss of important off-channel habitats Work with landowners and other agencies to limit activities that may be detrimental to this species
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Maintain connectivity Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations
	Overexploitation	Continue to manage harvest as needed Continue to educate anglers on identification of sauger and walleye

Pallid Sturgeon (*Scaphirhynchus albus*) State Rank: S1

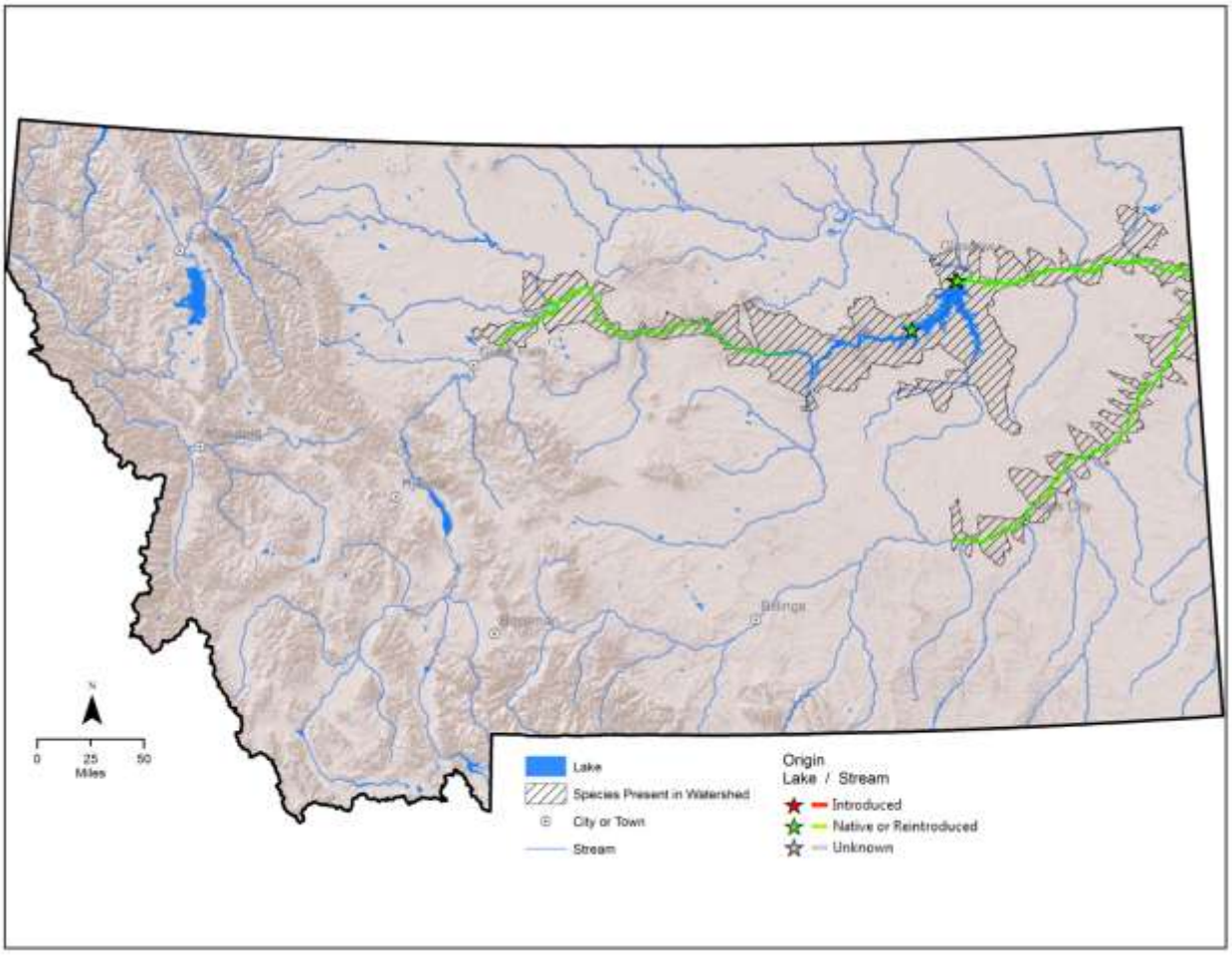

Figure 77. Distribution of the pallid sturgeon

Habitat

Pallid sturgeon use large, turbid rivers over sand and gravel bottoms, usually in strong current. In Montana, pallid sturgeon use large turbid streams including the Missouri and Yellowstone Rivers (Brown 1971; Flath 1981). They also use all channel types, primarily straight reaches with islands (Bramblett 1996). They primarily use areas with substrates containing sand (especially bottom sand dune formations) and fines (93% of observations; Bramblett 1996). Stream bottom velocities range between 0.0 and 4.5 feet per second, with an average of 2.1 feet per second (Bramblett 1996). Depths used are 2.0-47.6 feet, averaging 10.8 feet, and they appear to move deeper during the day (Bramblett 1996). Channel widths from 360-3,600 feet are used and average 1,063 feet (Bramblett 1996). Water temperatures used range from 37-68 degrees F. (Tews 1994; Bramblett 1996). Water turbidity ranges from 12-6,400 NTU (Turbidity Units) (Tews 1994).

Pallid sturgeon are long-lived (50+ years), highly migratory, and require large, turbid, relatively warm, and free-flowing rivers to successfully reproduce. The construction of dams and corresponding impoundments on the upper Missouri River beginning in the early 1900's, (e.g., Canyon Ferry and Fort Peck reservoirs, and North Dakota's Lake Sakakawea), Yellowstone

River (e.g., Intake Diversion Dam), and associated dammed tributaries (e.g., Yellowtail, Tongue, and Tiber reservoirs on the Bighorn, Tongue, and Marias rivers) have impeded successful spawning and recruitment of pallid sturgeon in Montana. Dams and impoundments block migration routes, alter natural spawning cues such as discharge, temperature and turbidity, fragment populations (i.e., above Fort Peck Reservoir), and alter habitats necessary for fry survival.

Management

Management plans and conservation efforts for pallid sturgeon are developed and implemented through a USFWS-coordinated Recovery Team that includes state- and federally-appointed staff. Short-term management objectives for the species include preventing local extirpation through population supplementation with hatchery-propagated fish, providing adult upstream passage at Intake Diversion Dam on the Yellowstone River, and developing strategies to address impacts to spawning and recruitment related to Fort Peck and Sakakawea reservoirs. Long-term and natural persistence of pallid sturgeon will require changes to reservoir operations that result in reestablishment of spawning cues and habitats necessary for fry survival. Though released hatchery reared juvenile pallid sturgeon number in the thousands, it is currently estimated that fewer than 120 adult pallid sturgeon persist in the upper Missouri and Yellowstone rivers above Lake Sakakawea.

Beginning in 1996, research efforts focused on pallid sturgeon recovery and preserving the pallid sturgeon genetic pool through collection of wild gametes and subsequent stocking of hatchery reared juvenile sturgeon. The primary purpose of the stocking program is to preserve the genetic pool and reconstruct an optimal population size within the habitat's carrying capacity (Krentz 1997; AFS website 2013). In 2000, USFWS completed an ESA consultation with USACOE regarding operation of Missouri River dams. Through an informal agreement the BOR agreed to provide a dominant discharge spring pulse out of the Tiber Reservoir every four to five years for Missouri River fish migrations that could help the Upper Missouri River pallid sturgeon population. To address pallid sturgeon passage and entrainment on the Yellowstone River, USFWS has begun consultation with BOR regarding problems at the Intake Diversion Dam. The future for pallid sturgeon recovery may continue to be uncertain even after positive changes have been implemented because pallid sturgeon populations are so depleted and the newly stocked fish will take at least 15 years before the females first reach sexual maturity and begin to spawn. Therefore, it is important to realize that immediate evaluations are impractical, and recovery will take a dedicated, long-term commitment (AFS website 2013). Implementing the pallid sturgeon recovery program in this area is a multistate and multiagency task. To facilitate this, the Montana/Dakota Pallid Sturgeon Work Group was organized in 1993. The group is comprised of representatives from FWP; South Dakota Game, Fish and Parks Department; USFWS; USACOE; BOR; Western Area Power Administration; and PPL-Montana, and acts in an advisory role identifying research needs and funding sources, developing work plans, and providing an opportunity for communication between biologists and agency personnel (AFS website 2013).

Management Plans

Dryer, M. P., and A. J. Sandvol. 1993. Recovery plan for the pallid sturgeon (*Scaphirhynchus albus*). U.S. Fish and Wildlife Service. Bismarck, North Dakota. 55 pp. *Currently under revision*.

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Upper Basin Workgroup. 2008. Memorandum of Understanding for Upper Basin Pallid Sturgeon Recovery Implementation.

Pallid Sturgeon Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Habitat modifications such as dams prevent movement to spawning and feeding areas; alter flow regimes, turbidity, and temperature; and reduce food supply Reservoirs have limited the distance of mainstem rivers, which is required for larval drift Cold water pollution decreases the carrying capacity of pallid sturgeon downstream of Fort Peck Dam	Habitat modifications such as dams prevent movement to spawning and feeding areas; alter flow regimes, turbidity, and temperature; and reduce food supply Continued operations of mainstem dams Future water withdrawals of both Yellowstone and Missouri Rivers and their tributaries	Protect minimum instream flow reservations to ensure that the pallid sturgeon population will not be impacted Restore more natural flow and temperature conditions in the rivers below mainstream and tributary dams Work with federal agencies to lengthen natural riverine habitat by strategically lowering reservoir elevations (i.e., Lake Sakakawea) In the Yellowstone River, ensure spawning habitat is available and accessible above Intake Dam and flows are adequate during spawning migrations to allow for successful spawning In the Missouri River, implement spring flows out of Fort Peck that are of adequate volume and duration to stimulate spawning and maximize the amount of river length for drifting larval pallids Provide passage over Vandalia Dam on the Milk River to enable successful spawning

Current Impacts	Future Threats	Conservation Actions
Low population numbers	Low population numbers	Establish a self-sustaining population through natural spawning and recruitment in the Middle Missouri, Lower Missouri, and Yellowstone rivers to prevent extinction Improve knowledge of pallid sturgeon life cycle requirements and continue to research limiting factors affecting existence
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Maintain connectivity Routinely monitor known populations
	Lack of understanding or support of pallid sturgeon recovery efforts	Conduct public outreach to expand the appreciation for pallid sturgeon as a keystone species in Montana Build support for current and future conservation efforts for the species
	Upstream and nearby land use practices may degrade water quality	Work with landowners and land management agencies to limit activities that may be detrimental to this species
	Heavy metals and organic compounds may affect reproduction	Appropriate conservation action(s) unknown
	Hybridization with shovelnose sturgeon, possibly caused by reductions in habitat diversity	Appropriate conservation action(s) unknown

White Sturgeon (Kootenai River Population) (*Acipenser transmontanus*) State Rank: S1

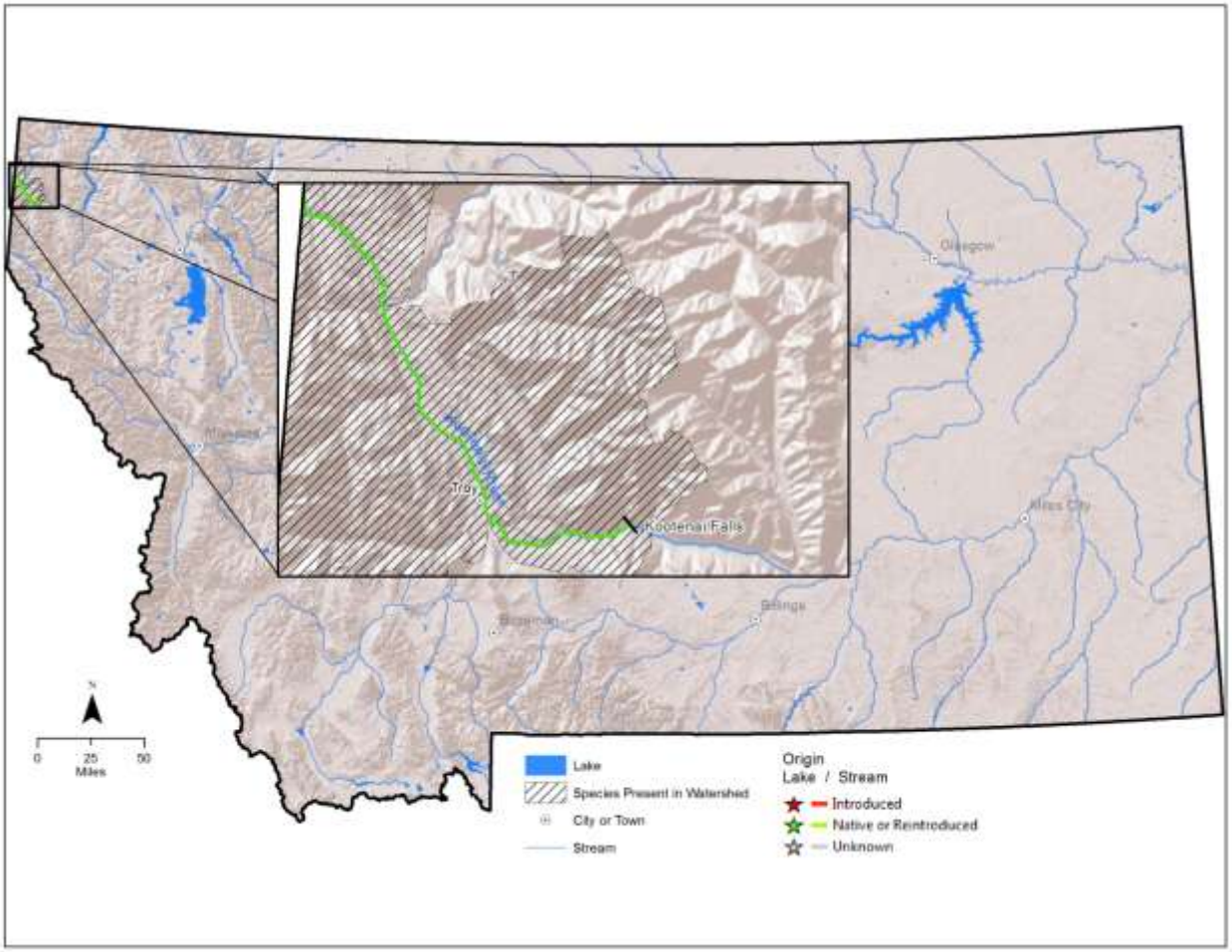

Figure 78. Distribution of white sturgeon

Habitat

The white sturgeon is landlocked in Montana and lives in the large, cool Kootenai River.

Management

Recovery of the white sturgeon population in the Kootenai River is contingent upon reestablishing natural recruitment, minimizing additional loss of genetic variability, and successfully mitigating biological and habitat alterations that continue to harm the population. Refer to the White Sturgeon Recovery Plan (USFWS 1999) for specific details promoting management of white sturgeon. The Kootenai River White Sturgeon Study and Conservation Aquaculture Project was initiated to preserve the genetic variability of the population, begin rebuilding natural age class structure, and prevent extinction while measures are implemented to restore natural recruitment (Anders and Westerhof 1996, USFWS 1999, Ireland 2000, Ireland et al. 2002). A breeding plan has been implemented to guide management in the systematic collection and spawning of wild adults before they are lost from the breeding population (Kincaid 1993). The implementation of the breeding plan includes measures to minimize potential detrimental effects of conventional stocking programs (AFS website 2013).

Management Plan
Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

U.S. Department of the Interior, Fish and Wildlife Service. 1999. White Sturgeon: Kootenai River Population Recovery Plan. Region 1, USFWS, Portland, Oregon.

White Sturgeon Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Recruitment failure: embryo suffocation, predation on early life stages, resource limitations, and possible intermittent female stock limitation	Recruitment failure: embryo suffocation, predation on early life stages, resource limitations, and possible intermittent female stock limitation	Continue the conservation aquaculture program to prevent extinction and preserve genetic variability
Reduced spring flows, unnatural flow fluctuations, and altered thermal regime caused by Libby Dam operation, which may have interrupted spawning behavior and recruitment	Reduced spring flows, unnatural flow fluctuations, and altered thermal regime caused by Libby Dam operation, which may have interrupted spawning behavior and recruitment	Coordinate flow fluctuations in Libby Dam to represent natural flows Restore riparian habitats and communities to increase productivity and river function Support restoration efforts of the Kootenai Tribe of Idaho
Limited understanding of species life history in Montana	Limited understanding of species life history in Montana	Continue to enforce an angling ban Continue trend/status monitoring to better understand how this species utilizes portions of the Kootenai River in Montana Participate on and support efforts of the Kootenai River White Sturgeon Recovery Team
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routine monitoring of known populations

Blue Sucker (*Cycleptus elongates*) State Rank: S2S3

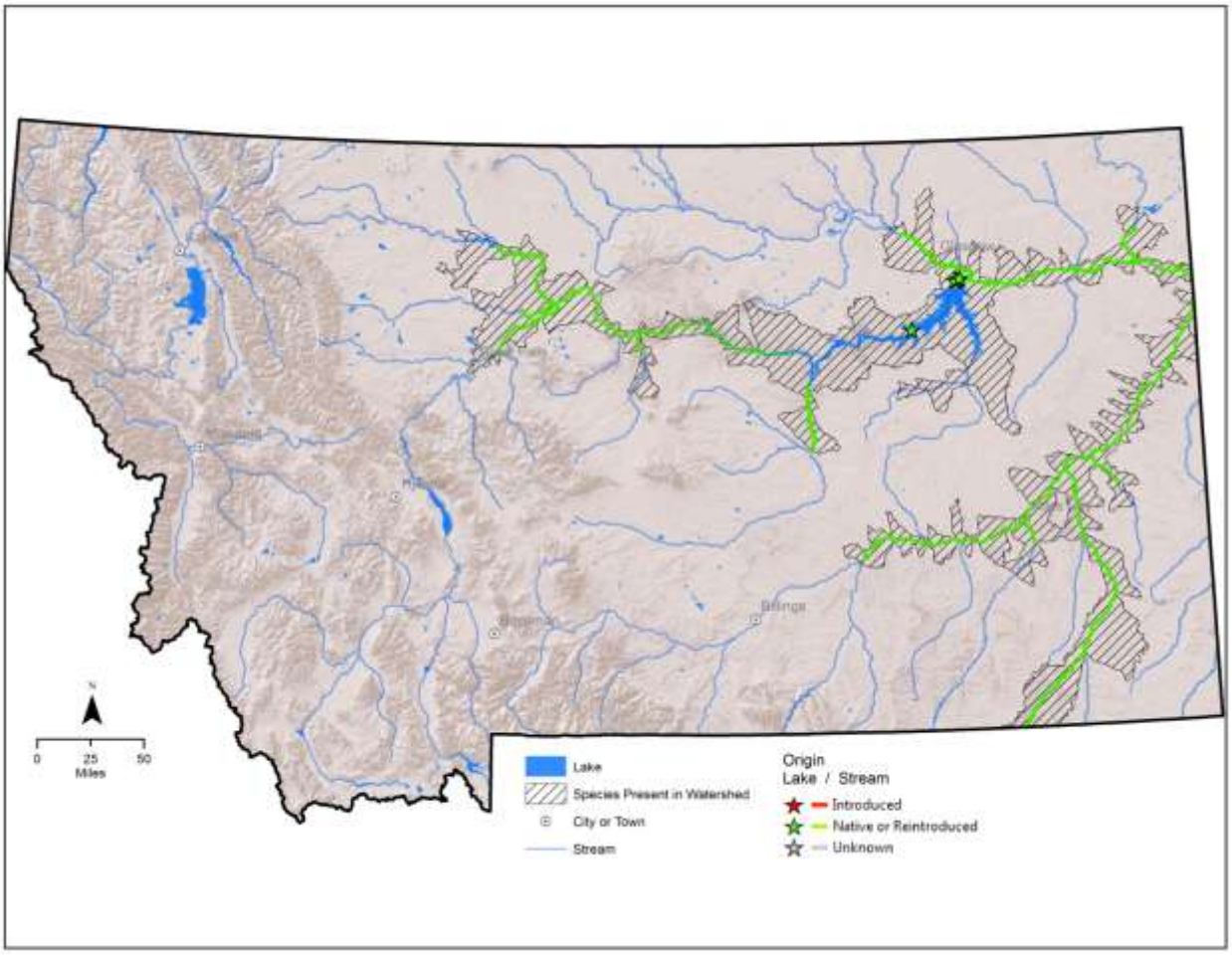

Figure 79. Distribution of blue sucker

Habitat

The blue sucker is adapted for life in swift currents with low turbidity. This fish prefers swift current areas of large rivers and feeding on insects in cobble areas (Moss et al. 1983). In the spring blue suckers migrate upriver and congregate in fast rocky areas to spawn. Large numbers have been observed migrating up tributary streams to spawn. The Tongue, Marias, Milk, and Teton rivers are the tributary streams most heavily used.

Management

Management of the blue sucker consists primarily of routine monitoring of population status and habitat protection. Currently, there is no management plan for blue suckers in Montana. The blue sucker is considered an indicator species for ecotype health because of its habitat-specific requirements, particularly migration needs that are impacted by barriers (i.e., diversions, impoundments). Current monitoring information indicates the populations are in stable condition.

Management Plans

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Blue Sucker Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Limited information on this species in Montana		Identify data gaps; improve understanding of the life history and possible limiting factors
Habitat changes and fragmentation caused by large dams that block passage to spawning grounds, alter stream flow, and eliminate peak flows that initiate spawning runs. Dams also discharge cold, clear water as opposed to the warm, turbid waters in which these species evolved	Habitat changes and fragmentation caused by large dams that block passage to spawning grounds, alter stream flow, and eliminate peak flows that initiate spawning runs. Dams also discharge cold, clear water as opposed to the warm, turbid waters in which these species evolved Continued reduction of instream flows Water withdrawals for energy development	Consider preparing a management plan for the blue sucker or include it in other comprehensive taxonomic plans Regulate water regimes to be more closely tied to natural water regimes
Changes in riparian habitat and less regeneration of woody trees and understory	Changes in riparian habitat and less regeneration of woody trees and understory	Continue conservation of habitats by implementing compatible grazing practices in riparian areas Ensure periodic inundation of floodplain to encourage cottonwood generation Work with landowners and land management agencies to limit activities that may be detrimental to this species
Loss of lateral habitats due to dam operations and continued bank armoring degrade natural habitat	Loss of lateral habitats due to dam operations and continued bank armoring degrade natural habitat	Protect natural minimum instream flow reservations

Current Impacts	Future Threats	Conservation Actions
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

Arctic Grayling (*Thymallus arcticus*)* State Rank: S1

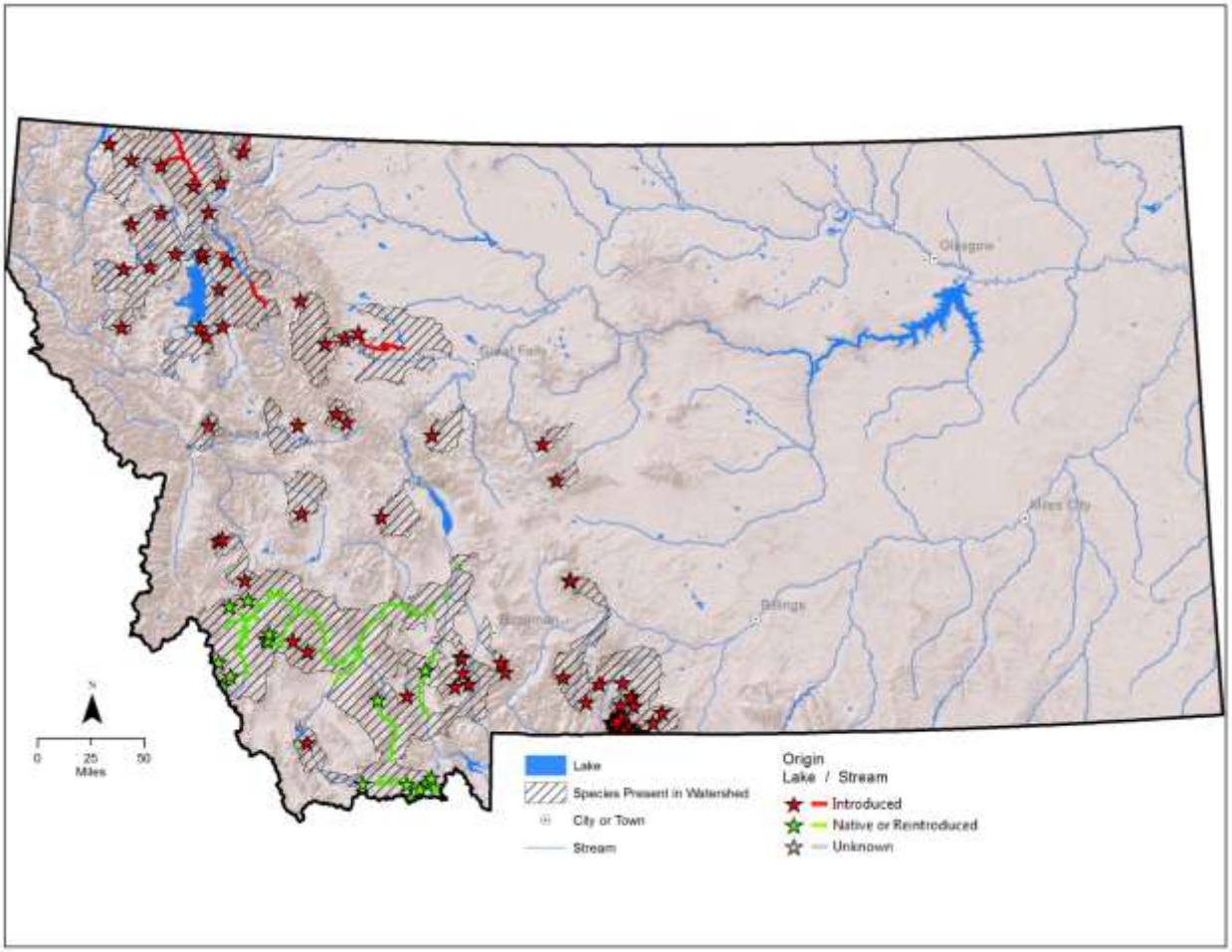

Figure 80. Distribution of Arctic grayling

Habitat

The arctic grayling occurs in both ponds/lakes as well as riverine systems; however, these differences make two distinct life histories of either adfluvial or fluvial populations. Cool temperatures are needed to sustain populations, and a gravelly substrate is needed for breeding purposes.

Management

On September 8, 2010, USFWS determined that the upper Missouri River basin Distinct Population Segment of Arctic Grayling warrants protection under the ESA, but that listing the species under the ESA is precluded by the need to address other higher priority listing actions. A proposed rule for potential ESA listing (endangered, threatened, or not warranted) will be issued in the fall of 2014, and a final rule in the fall 2015.

Habitat alterations are a key factor in the loss of fluvial Arctic grayling in most of their historic range in Montana. Over the last decade, in an effort to conserve and recover the remaining fluvial grayling population in Montana, FWP and numerous partners have engaged private landowners in the Big Hole Valley to aid grayling recovery through enhancement of habitat.

Implemented through a USFWS approved CCAA program, the goal of the effort is to secure Arctic grayling in the upper Big Hole River by improving streamflow, protecting and enhancing stream habitat and riparian areas, increasing fish passage, and eliminating entrainment of fish in irrigation ditches.

An Arctic Grayling Work Group meets on an annual basis to develop grayling conservation strategies and work plans. The technical advisory group is chaired by FWP and includes participants from state and federal resources agencies, universities, and private interest groups.

To formalize commitments to Arctic grayling conservation in Montana, in 2007, the *Memorandum of Understanding Concerning Montana Arctic Grayling Restoration* was developed and signed by numerous state, federal, and private stakeholders. The Memorandum commits the parties to a cooperative restoration program, and provides a means to obligate financial resources as they are available.

FWP has developed two conservation broods from aboriginal Big Hole River fluvial stock for fluvial grayling restoration purposes and occasional lake stocking in south-central Montana. The conservation broods, maintained in two lakes in the Madison and Gallatin river drainages, are to be used in efforts to reestablish native fluvial grayling in portions of their historic range, including most recently the Ruby River near Alder, Montana. A similar restoration effort in Elk Lake, near Lima, Montana, is being implemented to "replicate" the adfluvial aboriginal Red Rocks Lake population and expand the range of Arctic grayling to habitat it once occupied.

<u>Management Plans</u>

Montana Fish, Wildlife & Parks. 2007. Memorandum of Understanding Concerning Montana Arctic Grayling Restoration.

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Montana Fluvial Arctic Grayling Workgroup. 1995. Montana Fluvial Arctic Grayling Restoration Plan. Montana Department of Fish, Wildlife & Parks, Helena, Montana. *Currently under revision*

U.S. Fish and Wildlife Service. 2006. Candidate conservation agreement with assurances for Arctic grayling in the upper Big Hole River. FWS Tracking # TE104415-0.

Arctic Grayling Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Blockage of fish passage by irrigation diversions	Blockage of fish passage by irrigation diversions	Work with landowners and land management agencies to limit activities that may be detrimental to this species

Current Impacts	Future Threats	Conservation Actions
Low flows during severe drought decrease survival of older arctic grayling due to high water temperatures, increased susceptibility to predation, and diminished habitat volume	Low flows during severe drought decrease survival of older arctic grayling due to high water temperatures, increased susceptibility to predation, and diminished habitat volume	Conduct riparian rehabilitation projects on the Big Hole River Work with landowners and land management agencies to limit activities that may be detrimental to this species
Displacement by non-native rainbow and brook trout	Displacement by non-native rainbow and brook trout	Install barriers to prevent displacement or competition Determine the effect of non-native trout on Arctic grayling Reduce stocking of non-native fish Reintroduce grayling into areas where they formerly existed
Overharvest: Arctic grayling are easily caught by anglers	Overharvest: Arctic grayling are easily caught by anglers	Continue to modify harvest as needed
Riparian vegetation and streambanks affected by incompatible range or forest management practices, mass willow removal, and dewatering of the river for agricultural uses have negatively impacted fish habitat	Riparian vegetation and streambanks affected by incompatible range or forest management practices, mass willow removal, and dewatering of the river for agricultural uses have negatively impacted fish habitat	Assist private landowners with funding to improve habitat Continue to support Arctic grayling CCAA (USFWS 2006) Undertake habitat restoration and enhancement Support management of grazing to maintain riparian vegetation and streambank and channel stability in excellent condition
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

* Only native or reintroduced populations will be addressed.

Bull Trout (*Salvelinus confluentus*) State Rank: S2

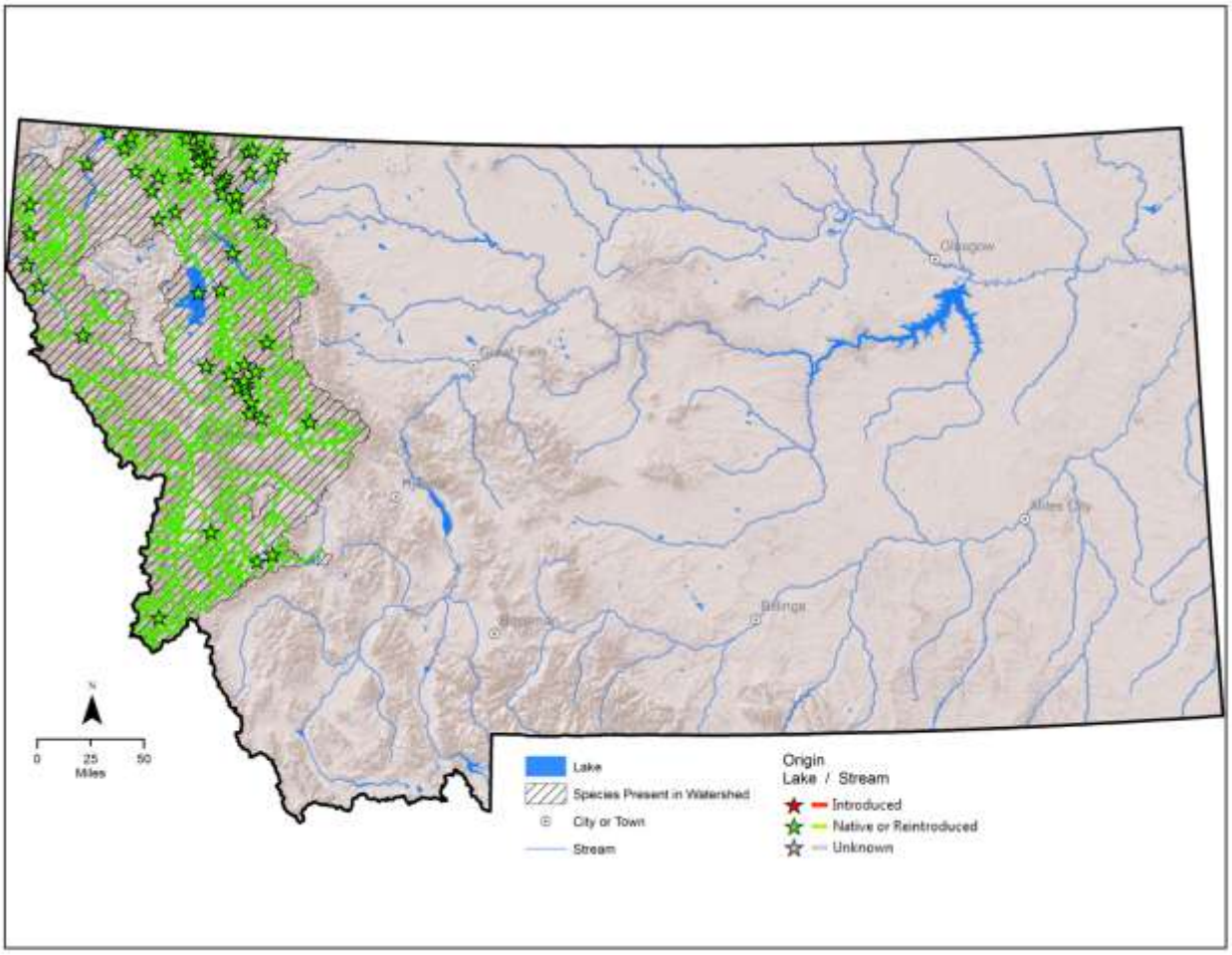

Figure 81. Distribution of bull trout

Habitat

Subadult and adult fluvial bull trout reside in larger streams and rivers and spawn in smaller tributary streams, whereas adfluvial bull trout reside in lakes and spawn in tributaries. A "resident" life history form, common in some areas, never leaves natal tributaries. Bull trout spawn in cold headwater streams with clean gravel bottoms (Brown 1971; Holton 1981).

Several studies report bull trout local population genetic divergence down to the geographic scale of adjacent tributaries (Leary et al. 1993; Kanda et al. 1997; Spruell et al. 1999; Taylor et al. 1999). Based on similar patterns of population genetic structure in steelhead, Parkinson (1984) suggested that populations in geographically adjacent streams be managed as separate stocks.

Management

While bull trout remain widespread in Montana, significant declines in abundance have been observed in most populations. Major causes for these declines include changes in habitat that reduce spawning success, barriers that prevent movement of migratory fish, and non-native fish (e.g. lake trout, brown trout, brook trout) that prey on or compete and hybridize with bull trout. Bull trout in the South Fork of the Flathead, above Hungry Horse Reservoir, remain a protected

and robust population. Bull trout are a Montana SOC and were listed as an ESA threatened species by the USFWS in 1998 (USFWS 1998).

Because bull trout are a federally listed species, FWP and numerous state, federal, and private partners are active participants in their management and conservation. Habitat protection and restoration, and restoration of migratory corridors (e.g., removal of barriers to movement) are among key elements to bull trout conservation and recovery. The large-scale habitat restoration program in the Blackfoot Valley and the removal of Milltown Dam are notable examples of these types of efforts. The presence of predatory non-native fish, particularly lake trout, northern pike and walleye, is significant but a difficult threat to address. An on-going experimental lake trout removal effort in Swan Lake has been implemented to not only aid in the conservation of Swan drainage bull trout, but also to determine whether suppression of non-native species in certain locations can assist in bull trout recovery.

Angling and harvest is closely regulated to prevent additional stress on bull trout populations. Because of their opportunistic feeding habits and late maturity, bull trout are vulnerable to overharvest and poaching/accidental harvest, especially during spawning migrations and when in tributaries (Leathe and Enk 1985; Long 1997; Schmetterling and Long 1999; Carnefix 2002). Some Montana bull trout populations (e.g., Swan, South Fork Flathead, Kootenai, and Blackfoot rivers) responded well to more restrictive angling regulations or closures, and initial conservation efforts in Montana focused on such measures. Currently, intentional angling for bull trout is prohibited everywhere except in Hungry Horse and Lake Koocanusa reservoirs, Swan Lake, and the South Fork of the Flathead River upstream from Hungry Horse reservoir. Hungry Horse Reservoir is currently the only water in the state where a limited bull trout harvest is allowed. Some level of poaching (Swanberg 1996; Long 1997) and accidental harvest due to misidentification (Schmetterling and Long 1999) probably continues to impact some bull trout populations, but it is difficult to detect, quantify, prosecute, or prevent. Recent efforts to reduce misidentification include a bull trout identification and education webpage on the FWP website (http://fwp.mt.gov/education/angler/bullTroutIdProgram/).

Management of bull trout is guided by both state and federal documents. In 2000, a State of Montana sponsored effort with multiple stakeholders produced the planning document titled *Restoration Plan for Bull Trout in the Clark Fork River Basin and Kootenai River Basin in Montana* (Montana Bull Trout Restoration Team 2000). This plan sets goals, objectives and criteria for bull trout restoration, outlines actions to meet those criteria, and establishes a structure to monitor implementation and evaluate effectiveness of the plan. Local plans provide direct guidance for local bull trout conservation efforts and include such documents as *An Integrated Stream Restoration and Native Fish Conservation Strategy for the Blackfoot River Basin* (FWP 2005b), *Flathead Lake and River Co-Management Plan, 2001 – 2010* (FWP and Confederated Salish and Kootenai Tribes 2001), and the *Clark Fork River Native Salmonid Restoration Plan* (Clark Fork Relicensing Team Fisheries Working Group 1998). As a listed species, the USFWS is responsible for developing federal bull trout recovery plans and designation of "critical habitats." Although critical bull trout habitat in Montana was designated by the USFWS in 2010, the Federal bull trout recovery plan is still in a draft stage and has yet to be finalized (as of January 2014; USFWS 2002a).

All major river systems in western Montana (except the Yaak River) are designated by the USFWS as Critical Habitat for bull trout (USFWS 2002b). Critical Habitats are specific geographic areas that the USFWS considers essential for conservation and recovery of bull trout and may require special management and protection to meet recovery objectives. Non-native trout species that are popular sport fish can compromise bull trout use of these areas through predation, competition, and hybridization. The extent of these impacts varies by water and non-native species present. Historically bull trout have declined in number and distribution, with non-native trout often playing some role in the decline. However, recent management efforts have shown that the presence of non-native trout does not necessarily mean that bull trout populations will decline. Recent harvest restrictions and habitat improvements to enhance bull trout populations have resulted in some populations continuing to decline, some remaining stable (or ceasing the historical decline), and some increasing, all in the presence of non-native trout. Reasons for this variability may include interactions between the non-native trout and bull trout, as well as food web dynamics and habitat condition or type. Because non-native trout occupy portions of all of the drainages listed as Critical Habitat, a challenge for FWP is to continue to provide recreational fisheries for non-native trout while protecting and establishing viable populations of bull trout. Balancing the two is particularly challenging because bull trout populations typically require open systems for migration and this makes them more susceptible to the negative impacts associated with non-native trout.

Management of non-native species using liberalized harvest limits or active suppression is not viewed as a necessary or practical approach to bull trout management in all waters designated by the USFWS as Critical Habitat. Many river reaches identified as Critical Habitat currently support few if any bull trout, or are only seasonally utilized as migratory corridors. Such waters may have substantial habitat alterations that make them unsuitable for viable bull trout populations for the foreseeable future (e.g., Upper Clark Fork River above Flint Creek), or a mix of habitat changes and established non-native trout populations, which combined limit the likelihood that non-native species can be effectively managed to benefit bull trout (e.g., lower Bitterroot River). These river reaches may also support recreationally and economically important trout fisheries that are highly valued destinations for Montanans and out-of-state visitors. Though FWP will continue to evaluate the issue and possible solutions, implementing management techniques (i.e., passive or active suppression) with uncertain benefit to bull trout is unwarranted at this time.

Management Plans

Clark Fork Relicensing Team Fisheries Working Group. 1998. Clark Fork River Native Salmonid Restoration Plan. 63 pp.

Montana Bull Trout Restoration Team. 2000. Restoration plan for bull trout in the Clark Fork River basin and Kootenai River basin, Montana. Montana Department of Fish, Wildlife & Parks, Helena, Montana. 116 pp.

Montana Fish Wildlife and Parks. 2005. An Integrated Stream Restoration and Native Fish Conservation Strategy for the Blackfoot River Basin.

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Montana Fish, Wildlife & Parks and Confederated Salish and Kootenai Tribes. 2000. Flathead Lake and River Fisheries Co-Management Plan, 2001 – 2010. 57 pp.

U.S. Fish and Wildlife Service. 2002. Endangered and Threatened Wildlife and Plants: Bull Trout *(Salvelinus confluentus)* Draft Recovery Plan. Available: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E065

U.S. Fish and Wildlife Service. 2010. Revised Designation of Critical Habitat for Bull Trout in the Coterminous United States; Final Rule. Federal Register / Vol. 75, No. 200 / Monday, October 18, 2010 / Rules and Regulations. Available at: http://www.fws.gov/pacific/bulltrout/CriticalHabitat.html

Bull Trout Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Habitat degradation and loss due to incompatible land and water management practices	Habitat degradation and loss due to incompatible land and water management practices	Encourage and support opportunities such as land purchases or conservation easements to conserve upland areas adjacent to occupied bull trout waters Maintain adequate flows, cold thermal regime, high water quality, and connections between spawning and rearing habitat Restore degraded habitat and preserve existing healthy habitat Use USFWS bull trout critical habitat document to designate important bull trout areas
Introduction of non-native fishes resulting in competition, predation, and hybridization threats	Introduction of non-native fishes resulting in competition, predation, and hybridization threats	Increase management of non-native fishes Install barriers when necessary and manipulate fish populations to benefit bull trout when possible Prevent illegal introductions of fish species

Current Impacts	Future Threats	Conservation Actions
Loss of the migratory component of bull trout life history diversity by isolation and fragmentation of populations by both structural (e.g., dams) and environmental (e.g., thermal or pollution) barriers	Loss of the migratory component of bull trout life history diversity by isolation and fragmentation of populations by both structural (e.g., dams) and environmental (e.g., thermal or pollution) barriers	Reestablish connectivity between habitats isolated by constructed barriers Continue electrofishing surveys to monitor the status of bull trout and to determine whether mitigation measures implemented lead to improvements in this population
Ongoing poaching and accidental harvest due to misidentification	Ongoing poaching and accidental harvest due to misidentification	Educate anglers on bull trout identification and distribution Continue to enforce existing regulations
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Maintain connectivity Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

Columbia River Redband Trout (*Oncorhynchus mykiss gairdneri*) State Rank: S1

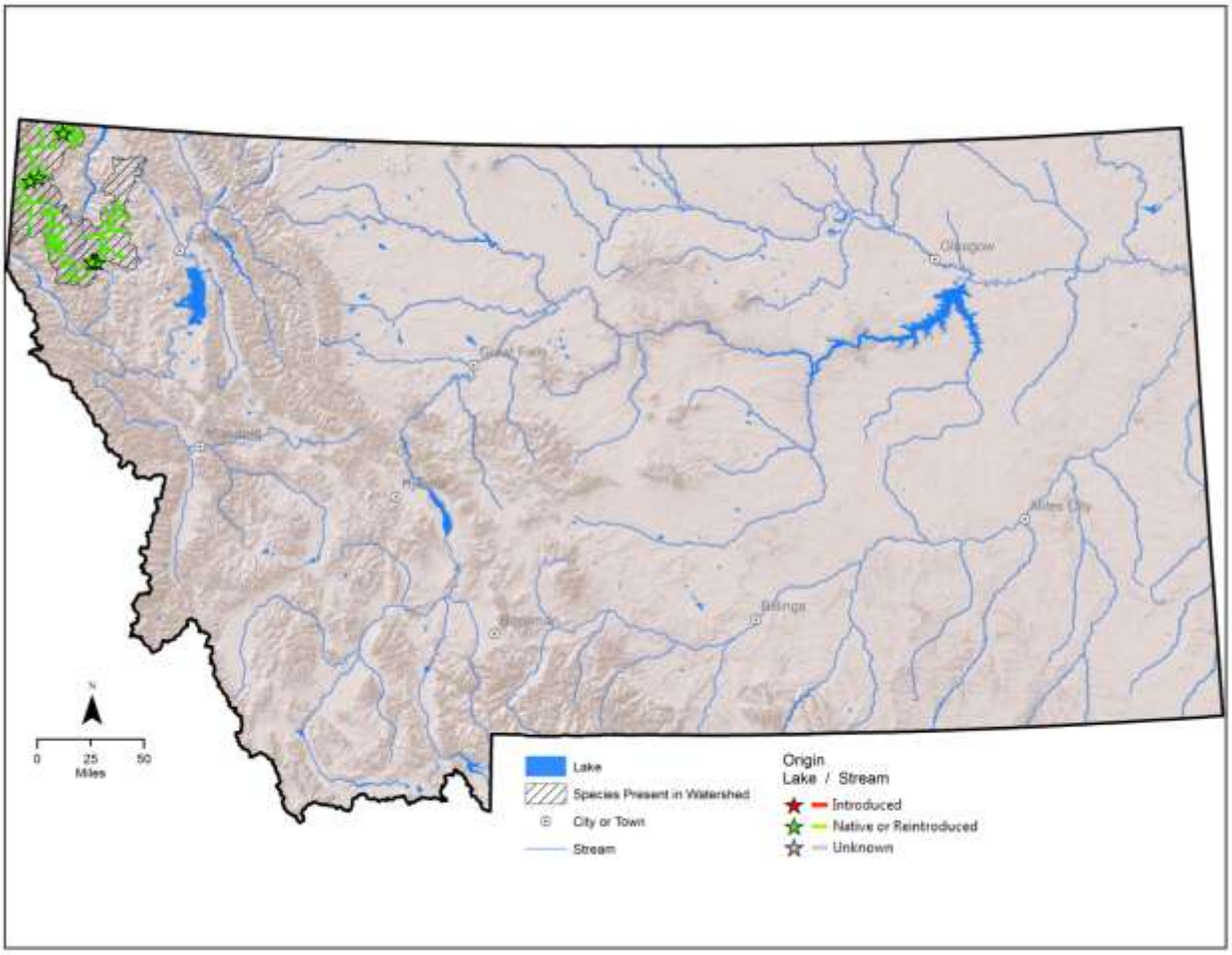

Figure 82. Distribution of Columbia River redband trout

Habitat

The seasonal habitat requirements of redband trout in the Kootenai River drainage in Montana were investigated during 1997 and 1998 (Hensler and Muhlfeld 1999; Muhlfeld 1999; Muhlfeld et al. 2001). Summer results demonstrated that juvenile and adult redband trout prefer deep microhabitats (>1.3 feet) with low to moderate velocities (<1.6 feet/second) adjacent to the thalweg. Conversely, age-0 redband trout select slow water (less than 0.3 feet/second) and shallow depths (<0.7 feet) located in lateral areas of the channel. All ages of redband trout strongly selected pools and avoided riffles; runs were used generally as expected (based on availability) by juveniles and adults and more than expected by age-0 redband trout. At the macrohabitat scale, a multiple regression model indicated that low-gradient, mid-elevation reaches with an abundance of complex pools are critical areas for the production of redband trout. Mean reach densities ranged from 0.008-0.08 fish/yd^2. During the fall and winter period, adult redband trout occupied small home ranges and found suitable overwintering habitat in deep pools with extensive amounts of cover in headwater streams. In Basin Creek, adult redband trout commenced spawning (e.g., redd construction) during June as spring flows subsided following peak runoff. Redband trout generally selected redd sites in shallow pool tail-out areas (mean

depth = 0.9 feet; range: 0.7-1.5) with moderate water velocities (mean velocity = 1.6 feet/second; range: 0.8-2.3 feet/second) dominated by gravel substrate.

Management

FWP and land managers (state, federal, and private) are integral partners in the management of redband trout. Current management efforts include assessing and monitoring remaining populations; protecting important habitats; and developing long-term conservation strategies that may include removal of non-native trout and placement of barriers to prevent their return; and reintroduction of redband trout to streams where they have been lost. In addition, since 2002 FWP has been developing and testing a redband trout broodstock at FWP's Libby Isolation Facility and Murray Springs State Fish Hatchery. Established from a wild redband population, this brood is being developed to replace stocking for recreational purposes, of hatchery coastal rainbow trout or WCT, in drainages where redband trout are native. The effort will reduce the likelihood of additional hybridization of the species.

In the near term, the management direction for redband trout includes maintaining the existing distribution and genetic diversity of remaining populations, and developing conservation plans and projects that ensure long-term, self-sustaining persistence of the subspecies in Montana. Though recreational angling opportunities for the redband trout are currently limited outside of small streams, the development of a redband trout brood stock should provide future opportunities to establish recreational fisheries in closed-basin lakes in the Kootenai drainage. Likewise, efforts to secure and expand the distribution of existing populations and reintroduce them into streams where they have been lost will result in additional opportunities to pursue this unique native sport fish.

Management Plan

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Columbia River Redband Trout Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Culverts, dams, irrigation diversions, and other instream barriers that fully or partially impede movement and reduce connectivity of habitat	Culverts, dams, irrigation diversions, and other instream barriers that fully or partially impede movement and reduce connectivity of habitat	Remove or modify barriers to restore beneficial fish passage Support habitat restoration projects similar to those implemented by the Libby Dam Mitigation Project (Holderman et al., unknown year)
Habitat degradation and fragmentation due to development	Habitat degradation and fragmentation due to development	Encourage and support opportunities such as land purchases or conservation easements to conserve upland areas adjacent to occupied Columbia River redband trout waters

Current Impacts	Future Threats	Conservation Actions
Hybridization	Hybridization	Protect genetic composition by raising hatchery Columbia River redband trout Reduce stocking of non-native trout in sensitive areas Where appropriate and feasible, remove hybridized or competing populations of introduced species
Geographically restricted range	Geographically restricted range	Consider and investigate reintroduction efforts Consider preparing a management plan for the Columbia River redband trout or include it in other comprehensive taxonomic plans Identify specific areas where redband trout have been extirpated or severely reduced and work toward reestablishing populations Survey and assess areas where reintroduction efforts could occur
Incompatible range and forest management practices, including pesticide use	Incompatible range and forest management practices, including pesticide use	Encourage use BMPs for forest management activities to maintain diverse and resilient habitats within current range of redband trout Ensure species' requirements are included in forest plans Reduce stream intake of pesticides and herbicides Work with landowners and land management agencies to limit activities that may be detrimental to this species

Current Impacts	Future Threats	Conservation Actions
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Maintain connectivity Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

Lake Trout (*Salvelinus namaycush*)* State Rank: S2

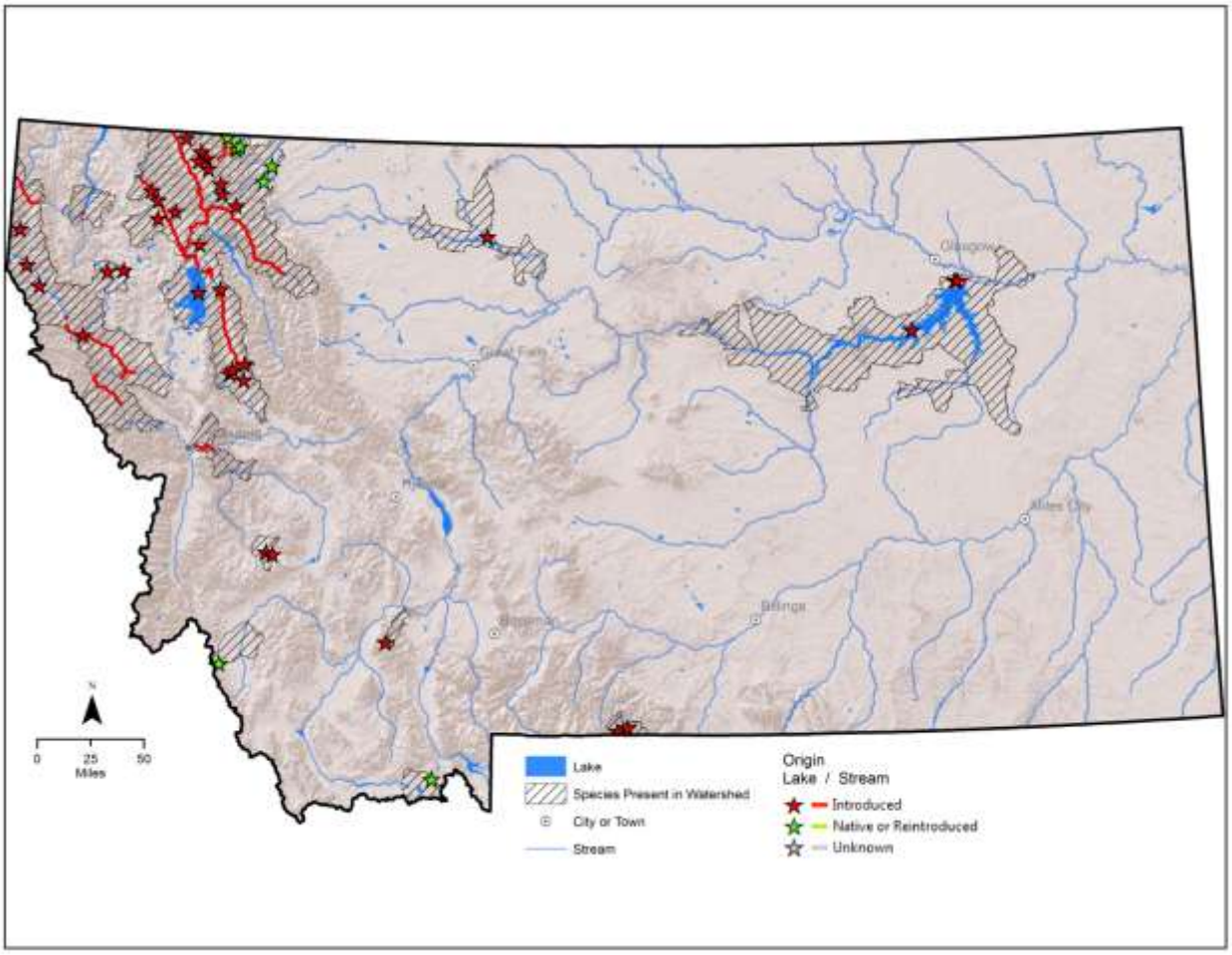

Figure 83. Distribution of lake trout

Habitat

While lake trout can be found in cold rivers and shallow lakes in the northern portion of its range (Scott and Crossman 1973) in Montana, native lake trout only inhabit a few deep, cold lakes remaining from the Pleistocene glaciations. Montana's native lake trout populations remain in Waterton Lake, Glenns Lake, Cosley Lake, and St. Mary Lake in Glacier National Park, and Lower St. Mary Lake in the Blackfeet Indian Reservation. All of these waters are in drainages that eventually reach the Hudson Bay. Other native populations occur in Twin Lake in the Big Hole River drainage and Elk Lake in the Red Rock River drainage, both tributaries to the upper Missouri River drainage.

Lake trout prefer water temperatures in the 50- to 57-degree F range and, therefore, spend most of their lives in deeper, benthic habitats. Lake trout can occasionally be found in shallow water habitats, usually immediately after ice-out when surface waters are within their preferred temperature range. They spawn in the fall on the rocky substrate of the shoreline. Lake trout scatter or broadcast their spawn, a rarity in the trout group.

Management

Management recommendations within this document pertain only to the Elk Lake and Twin Lake populations. Though additional information is necessary to better describe and monitor the status Montana's native lake trout populations, the Elk Lake population is believed to be relatively secure and stable. Recent data from the Twin Lakes population indicate the population is small and suffers from sporadic recruitment. It appears that spawning habitat in the lake is limited, and while fish are long-lived in the lake, they only successfully spawn periodically. It is possible that alterations to the outlet of the lake have contributed to the decline in available spawning habitat. Future projects are needed at Twin Lakes to improve spawning habitat and increase the frequency of successful spawning to stabilize the population and ensure its long-term persistence. The populations in Waterton, Cosley, Glenns, and St. Mary lakes are afforded the protection of their location within Glacier National Park. The Waterton population is believed to be abundant and stable.

Management Plan

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Lake Trout Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Genetic bottlenecks caused by small size of remaining populations	Genetic bottlenecks caused by small size of remaining populations	Reintroduce genetically pure native populations
Irregular recruitment	Irregular recruitment	Increase monitoring and surveying
Limiting factors unknown	Limiting factors unknown	Identify and remedy limiting factors
Little information on native populations	Little information on native populations	Consider preparing a management plan for the lake trout (native lakes) or include it in other comprehensive taxonomic plans
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

*Only native or reintroduced populations will be addressed.

Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*)* State Rank: S2

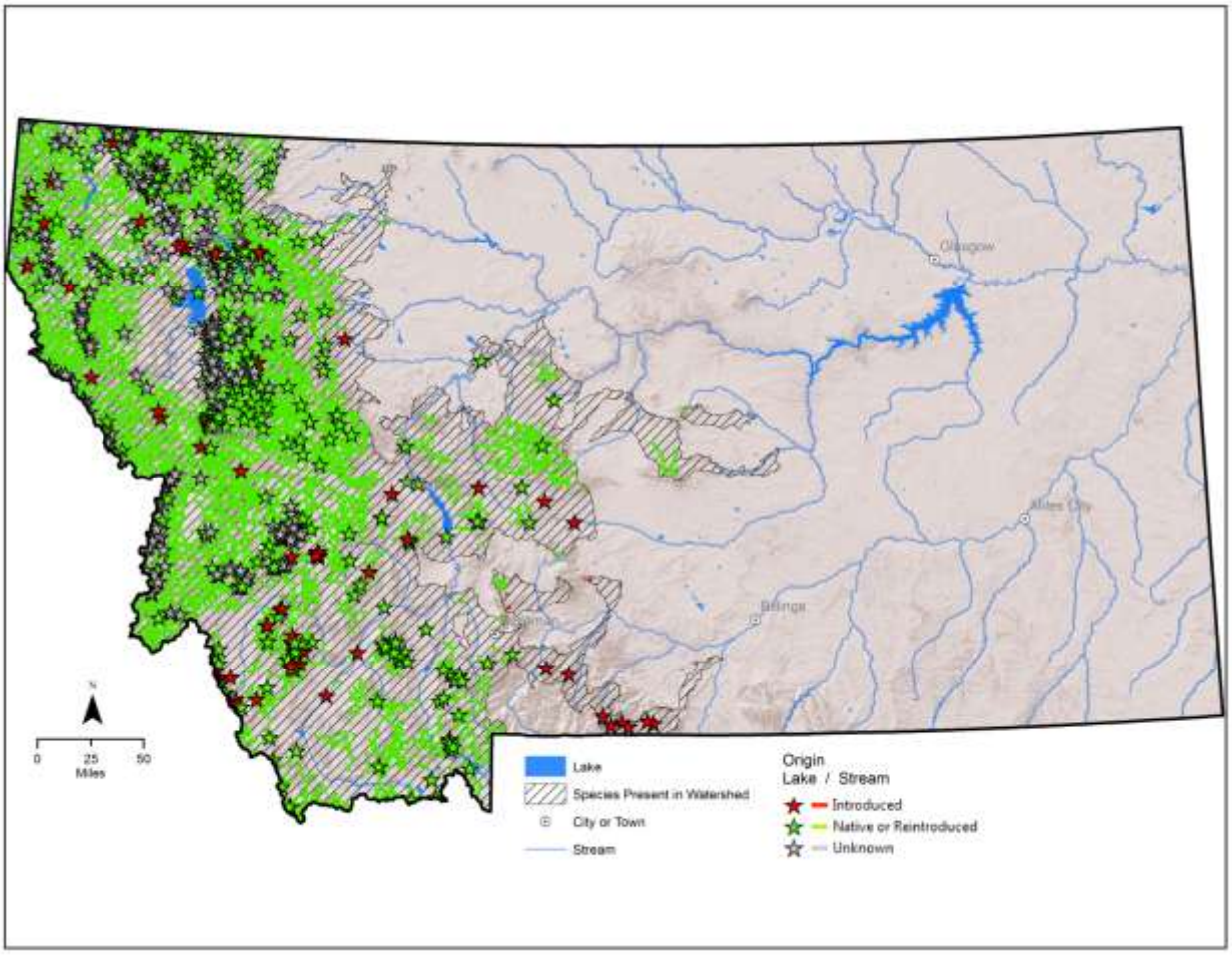

Figure 84. Distribution of westslope cutthroat trout

Habitat

WCT spawning and rearing streams tend to be cold and nutrient poor. This species seeks out gravel substrate in riffles and pool crests for spawning habitat. WCT have long been regarded as sensitive to fine sediment, generally defined as 0.25 inches or less. Although studies have documented negative survival as fine sediment increases (Weaver and Fraley 1991), it is difficult to predict their response in the wild (McIntyre and Rieman 1995). This is due to the complexity of stream environments and the ability of fish to somewhat adapt to microhabitat changes (Everest et al. 1987; AFS website 2013).

WCT require cold water, although it has proven elusive to define exact temperature requirements or tolerances. Likewise, cutthroat trout tend to thrive in streams with more pool habitat and cover than uniform, simple habitat (Shepard et al. 1984). Juvenile WCT overwinter in the interstitial spaces of large stream substrates. Adult WCT need deep, slow-moving pools that do not fill with anchor ice in order to survive the winter (Brown and Mackay 1995; AFS website 2013).

Management

While WCT remain common in many waters west of the continental divide and have been stocked in numerous lakes and reservoirs, their distribution and abundance has declined in many portions of their historic range. Major factors contributing to their decline include competition with non-native species of trout (e.g., brook, brown and rainbow trout), hybridization with rainbow trout, stocking outside their historic range, habitat changes, and migratory barriers. In Montana it is currently estimated that genetically pure WCT occupy about 20% (5,950 miles) of their historic range. Slightly hybridized populations, <10% level of hybridization, are also managed for their conservation value and when combined with genetically pure population, the current distribution of WCT increases to 30% (8,830 miles) their historic range.

The status of WCT throughout its distribution in Montana is quite variable. Non-hybridized WCT populations on the west side of the continental divide are more widely distributed and represent the majority of the occupation percentage listed above. Non-hybridized WCT populations in the Upper Missouri River Basin presently only occupy 4% of their historic distribution, and are commonly limited to small headwater streams. As a SGCN and sport fish, WCT receive considerable management attention and resources from FWP, federal land management agencies, and private organizations.

In most cases WCT populations residing in rivers and streams have been identified as "conservation populations," which indicates the need to manage the population for natural, self-sustaining persistence. Streams and rivers are not stocked with hatchery WCT, with the exception being restoration efforts where cutthroat brood or wild eggs are introduced in smaller streams to reestablish populations. Stream and river creel regulations vary based on strength of populations, with "catch and release" or limited harvest; size limit is the most common type of regulation.

Management concerns for WCT vary by drainage and region of the state. Efforts to address threats are often developed specific to an individual body of water. In some waters, angler harvest limits and habitat protection are suitable management measures to ensure robust WCT populations remain. In all locations, biologists are actively monitoring and maintaining or improving habitat conditions necessary for robust cutthroat populations. Such efforts may include addressing concerns related to riparian condition, passage concerns at road crossings, entrainment in irrigation systems, and in-stream flow. In some drainages, non-native trout species are removed to reduce threats to "at-risk" WCT populations, or to develop areas for cutthroat restoration. Barriers to upstream fish passage are often constructed at the lower end of these recovery areas to prevent re-invasion of non-native species. Projects to reestablish WCT populations for conservation purposes are common in the upper Missouri and Yellowstone drainages, and these efforts often include transferring eggs or live fish from existing threatened populations to preserve their genetic legacy.

Management of Montana's WCT is directed by regional and statewide management plans. The 2007 document titled *Memorandum and Conservation Agreement for Westslope Cutthroat Trout and Yellowstone Cutthroat Trout in Montana* (FWP 2007) is the principal document that sets objectives and goals for overall cutthroat conservation in Montana, and has been signed by numerous state, federal, tribal, and private stakeholders.

Management Plans
Montana Fish, Wildlife & Parks. 2007. Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat and Yellowstone Cutthroat Trout in Montana. 37 pp.

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Shepard, B. B., B. E. May, W. Urie. 2003. Status of westslope cutthroat trout (*Onchorhyncus clarkii lewisi*) in the United States, 2002. Westslope Cutthroat Conservation Team.

Westslope Cutthroat Trout Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Restore habitat Enhance or restore vegetation along streams to increase shade Limit cattle access along streams where they may be reducing vegetation and shade Maintain connectivity Monitor habitat changes and address climate impacts through adaptive management as necessary Restore proper width:depth ratio to maintain favorable water temperature and flow regimes Routinely monitor known populations
Fish spawning habitat loss due to dewatering of streams for irrigation and because of barriers created by dams and road culverts	Fish spawning habitat loss due to dewatering of streams for irrigation and because of barriers created by dams and road culverts	Remove barriers and improve fish passage Work with landowners and land management agencies to limit activities that may be detrimental to this species

Current Impacts	Future Threats	Conservation Actions
Habitat loss due to incompatible range, forest, mining, or agricultural management practices; residential development; and the impact of roads	Habitat loss due to incompatible range, forest, mining, or agricultural management practices; residential development; and the impact of roads	Encourage and support opportunities such as land purchases or conservation easements to conserve upland areas adjacent to occupied waters Ensure that species' requirements are included in forest plans Conduct habitat restoration and enhancement Review subdivision requests and make recommendations based on FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a) to reduce negative effects on SGCN and their habitats Work with landowners and land management agencies to limit activities that may be detrimental to this species
Competition and predation by non-native species	Competition and predation by non-native species	Increase limits of non-native fish Install barriers when necessary and manipulate fish populations to benefit WCT when possible Remove non-native fish where appropriate and possible
Increased hybridization with other species	Increased hybridization with other species	Assess genetic status of conservation populations Continue to conserve genetically pure populations Install barriers to protect remaining populations Protect integrity of pure WCT isolates Restore pure WCT where applicable
Isolated and small population sizes	Isolated and small population sizes	Continue to monitor WCT for trend Continue to monitor WCT populations and adjust stocking when necessary

Current Impacts	Future Threats	Conservation Actions
		Continue to use the *WCT Memorandum of Understanding* (Montana Cutthroat Trout Steering Committee 2007) to identify and protect conservation areas Identify specific areas where WCT have been extirpated or severely reduced and work toward reestablishment of populations Increase stock populations of genetically pure WCT Reintroduce WCT
Overfishing (mainly migratory populations west of the Continental Divide)	Overfishing	Continue to closely manage WCT harvest Educate anglers on WCT identification and distribution

*Only native or reintroduced populations will be addressed.

Yellowstone Cutthroat Trout (*Oncorhynchus clarkii bouvieri*)* State Rank: S2

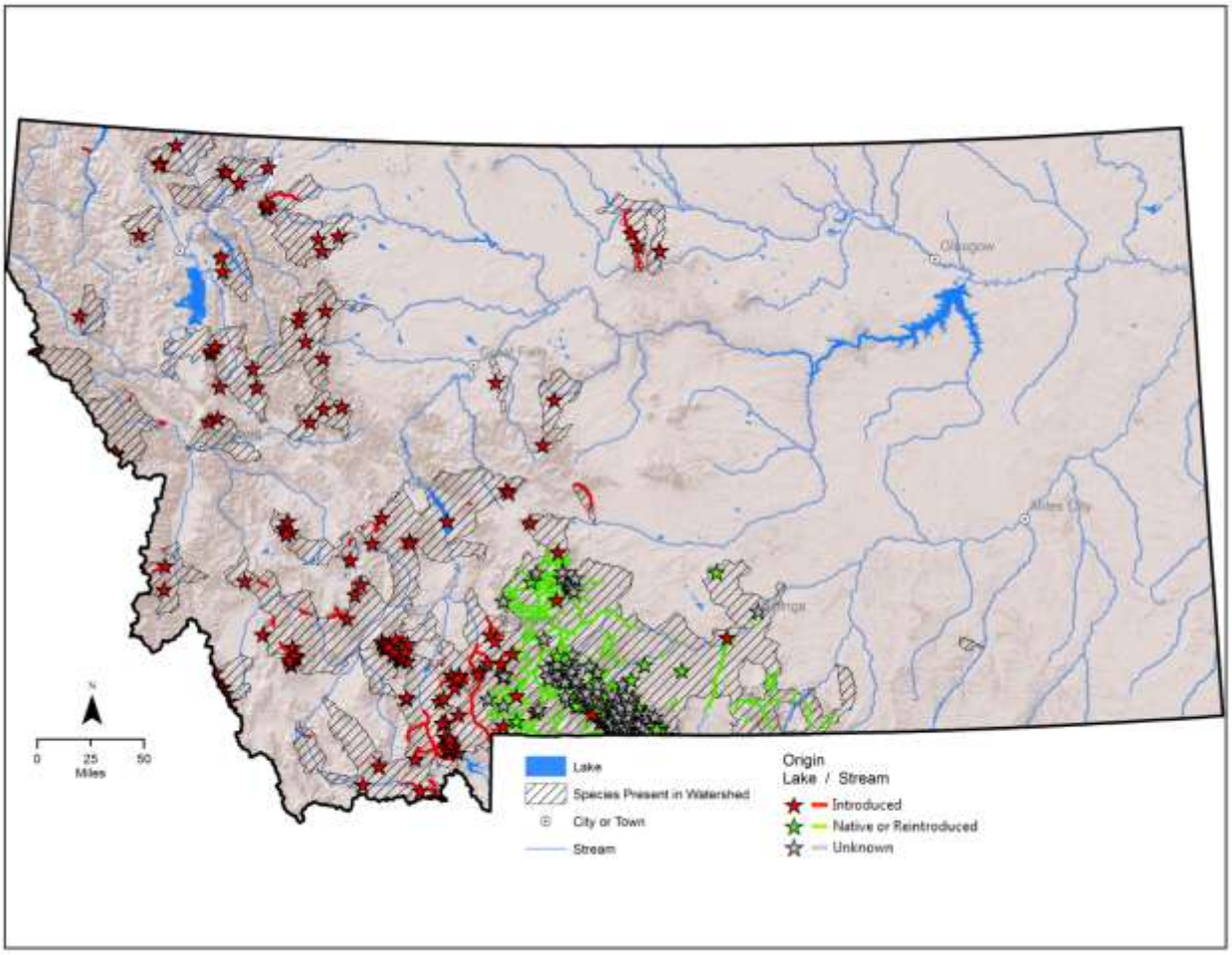

Figure 85. Distribution of Yellowstone cutthroat trout

Habitat

YCT inhabit relatively clear, cold streams, rivers, and lakes. Optimal temperatures have been reported to be from 39 to 59 degrees F., with occupied waters ranging from 32 to 81 degrees F (Gresswell 1995; AFS website 2013).

Management

As a SGCN and sport fish, YCT receive considerable management attention and resources from FWP, federal land management agencies, and private organizations. While YCT remain common in many waters west of the continental divide and have been stocked in numerous lakes and reservoirs, their distribution and abundance has declined in many portions of their historic range. Major factors contributing to the sub-species decline include competition with non-native species of trout (e.g., brook, brown, and rainbow trout), hybridization with rainbow trout, stocking outside their historic range, habitat changes, and migratory barriers. In Montana it is currently estimated that genetically pure YCT occupy about 16% (705 miles) of their historic range. Slightly hybridized populations, <10% level of hybridization, are also managed for their conservation value. When combined with genetically pure populations, the current distribution of YCT increases to 28% (1,210 miles) of their historic range.

YCT status and distribution varies spatially. Some areas exist where YCT have been isolated from non-native fishes, but many of the existing YCT populations overlap with non-native species and are therefore not secure. Non-hybridized YCT populations in the Upper Yellowstone River Basin presently occupy 26% of their historic distribution.

In most cases YCT populations residing in rivers and streams have been identified as "conservation populations," which indicates the need to manage the population for natural, self-sustaining persistence. Streams and rivers are not stocked with hatchery YCT, with the exception being restoration efforts where cutthroat brood or wild eggs are introduced in smaller streams to reestablish populations. Stream and river creel regulations vary based on strength of populations, with "catch and release" or limited harvest; size limit is the most common type of regulation.

Management concerns for YCT vary by drainage and region of the state. Efforts to address threats are often developed specific to an individual body of water. In some waters, angler harvest limits and habitat protection are suitable management measures to ensure that robust YCT populations remain. In all locations, biologists are actively monitoring and maintaining or improving habitat conditions necessary for robust cutthroat populations. Such efforts may include addressing concerns related to riparian condition, passage concerns at road crossings, entrainment in irrigation systems, and in-stream flow. In some drainages, non-native trout species are removed to reduce threats to "at-risk" populations, or to develop areas for cutthroat restoration. Barriers to upstream fish passage are often constructed at the lower end of these recovery areas to prevent reinvasion of non-native species. Projects to reestablish YCT populations for conservation purposes are common in the upper Missouri and Yellowstone drainages, and these efforts often include transferring eggs or live fish from existing threatened populations to preserve their genetic legacy.

Management of YCT is directed by regional and statewide management plans. The 2007 document titled *Memorandum and Conservation Agreement for Westslope Cutthroat Trout and Yellowstone Cutthroat Trout in Montana* (FWP 2007) is the principal document that sets objectives and goals for overall cutthroat conservation in Montana, and has been signed by numerous state, federal, tribal, and private stakeholders.

Management Plans

Endicott, C., S. Opitz, B. Shepard, P. Byorth, S. Shuler, S. Barndt, B. Roberts, and L. Roulson. 2012. Yellowstone cutthroat trout conservation strategy for the Shields River watershed above Chadbourne Diversion. 141 pp. http://fwp.mt.gov/fishAndWildlife/management/yellowstoneCT/

Montana Fish, Wildlife & Parks. 2000. Cooperative Conservation Agreement for Yellowstone Cutthroat Trout within Montana between Crow Tribe, Montana Department of Fish, Wildlife & Parks, Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, USDA Forest Service–Northern Region, Gallatin and Custer national forests, Bureau of Land Management–Montana, U.S. Fish and Wildlife Service, Bureau of Indian Affairs, Yellowstone National Park.

Montana Fish, Wildlife & Parks. 2007. Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat and Yellowstone Cutthroat Trout in Montana. 37 pp.

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Montana Fish, Wildlife & Parks. 2013. Yellowstone Cutthroat Trout Conservation Strategy for Montana. http://fwp.mt.gov/fishAndWildlife/management/yellowstoneCT/

Range-Wide Yellowstone Cutthroat Trout Conservation Team. 2009. Conservation Strategy for Yellowstone Cutthroat Trout (*Oncorhynchus clarkii bouvieri*) in the States of Idaho, Montana, Nevada, Utah and Wyoming. Montana Fish, Wildlife and Parks, Helena.

Yellowstone Cutthroat Trout Working Group. 1994. Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*) management guide for the Yellowstone River drainage. Montana Department of Fish, Wildlife & Parks, Helena, Montana, and Wyoming Game and Fish Department, Cheyenne, Wyoming.

Yellowstone Cutthroat Trout Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Restore habitat Maintain connectivity Routinely monitor known populations
Culverts, dams, irrigation diversions, and other instream barriers that fully or partially impede fish movement and reduce connectivity of habitat	Culverts, dams, irrigation diversions, and other instream barriers that fully or partially impede fish movement and reduce connectivity of habitat	Remove or modify barriers to restore beneficial fish passage
Habitat degradation	Habitat degradation	Restore or enhance habitat
Persistence of non-native fish	Persistence of non-native fish	Continue harvest management of non-native trout Reduce or eliminate stocking of non-native fish

Current Impacts	Future Threats	Conservation Actions
Incompatible range, forest, development, or mining management practices	Incompatible range, forest, development, or mining management practices	Encourage and support opportunities such as land purchases or conservation easements to conserve upland areas adjacent to occupied waters Ensure that species requirements are included in forest plans Restore and enhance habitat Review subdivision requests and make recommendations based on FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a) to reduce the negative effects on SGCN and their habitats Work with landowners and land management agencies to limit activities that may be detrimental to this species
River channelization or rip-rap	River channelization or rip-rap	Work with new stabilization projects to reduce impacts and support efforts to restore existing rip-rap areas to natural condition
Susceptibility to infection by *Myxobolus cerebralis*, a European protozoan and the causative agent of whirling disease	Susceptibility to infection by *Myxobolus cerebralis*, a European protozoan and the causative agent of whirling disease	Work with partners to provide or obtain funding to study whirling disease
Tributary dewatering by unsustainable irrigation practices	Tributary dewatering by unsustainable irrigation practices	Work with landowners and land management agencies to limit activities that may be detrimental to this species

Current Impacts	Future Threats	Conservation Actions
Widespread stocking of non-indigenous populations of YCT	Widespread stocking of non-indigenous populations of YCT	Decrease stocking of non-indigenous YCT to decrease genetic homogenization Decrease stocking of non-native trout Follow recommendations in the *Yellowstone Cutthroat Trout Conservation Strategy for Montana* (FWP 2013b), specifically for monitoring for genetic diversity and population change (pages 183-184)

*Only native or reintroduced populations will be addressed.

Trout-perch (*Percopsis omiscomaycus*) State Rank: S2
Species of Greatest Inventory Need

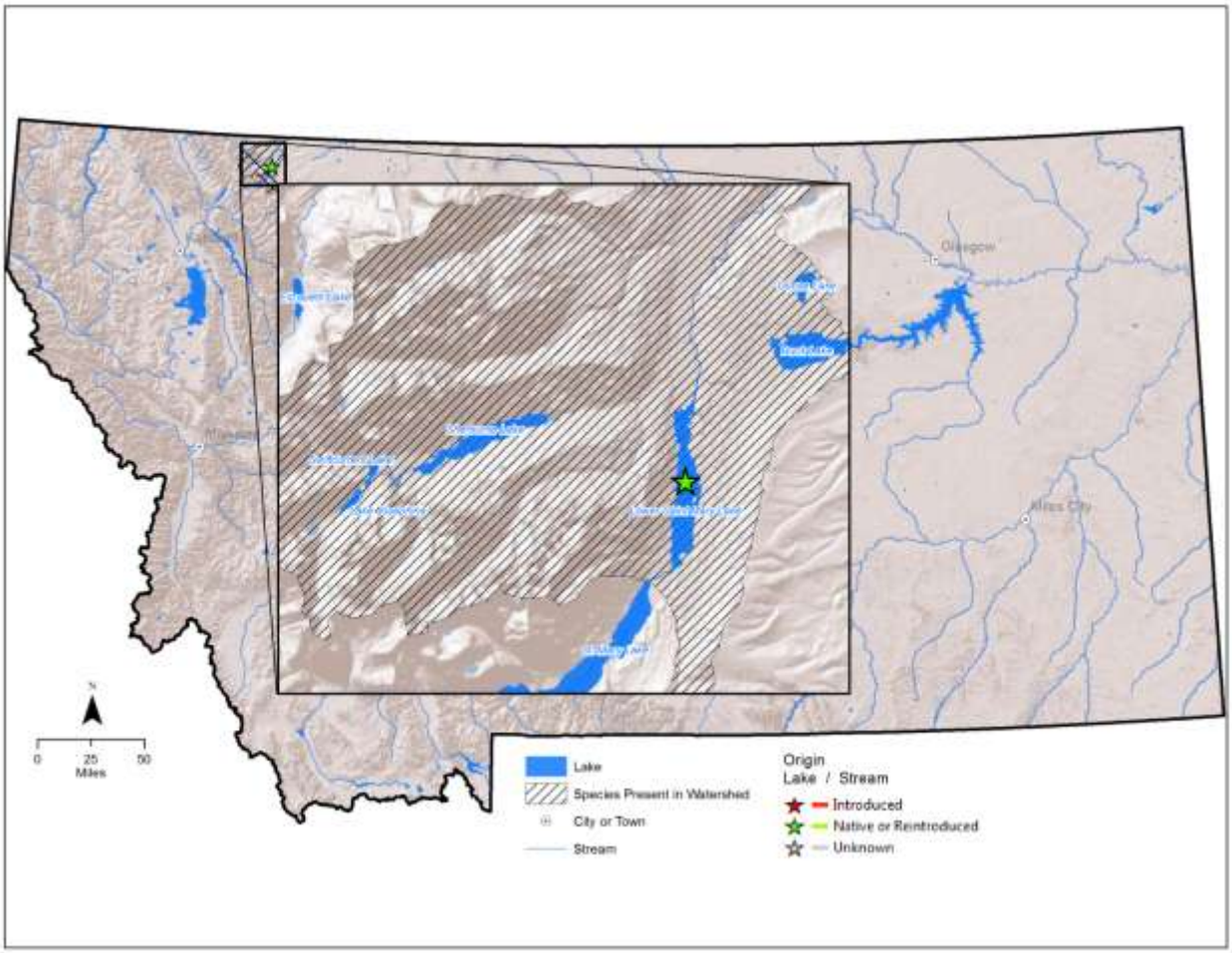

Figure 86. Distribution of the trout-perch

Habitat

Trout-perch preferred habitat is found along the shoals of lakes or in deeper pools of streams where the bottom is clean sand, gravel, or rubble. They spawn over sand or gravel in three to four feet of water. In Lower Saint Mary Lake, they are associated with large rocky cover, and have not been captured over sandy or silty substrates. During daylight periods, they appear to use rocks as hiding cover, while at night they are out of, but in close proximity to, rocky cover. In the Saint Mary Canal, trout-perch have been captured in winter after the canal head gate is closed. In the canal, trout-perch are found in residual pools, associated with large, rocky cover or concrete riprap (R. Wagner, USFWS, personal communication, October 2000; AFS website 2013).

Management

FWP classifies trout-perch as a nongame wildlife species and they are too small to be sought by anglers. The entire known range of trout-perch in Montana is within Glacier National Park and the Blackfeet Indian Reservation. Neither entity has a specific management program for trout-perch.

Management Plan

Montana Fish, Wildlife & Parks. 2013. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Trout-perch Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor Lacks baseline survey		Survey the Belly River and Waterton Lake in Montana to establish the presence of trout-perch in these waters Target species for survey and inventory
Impoundments restricting proper movement of populations	Impoundments restricting proper movement of populations	Manage irrigation and development to improve connectivity of habitat
Sensitive to pollution and sedimentation associated with row crop agriculture as well as channelization	Sensitive to pollution and sedimentation associated with row crop agriculture as well as channelization	Conserve riparian areas, including increasing restrictions on fertilizer and nutrient seepage into waters Work with landowners and land management agencies to limit activities that may be detrimental to this species
Sensitive to warm water temperatures	Sensitive to warm water temperatures	Appropriate conservation action(s) unknown
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Maintain connectivity Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

Mammals

Grizzly Bear (*Ursus arctos*) State Rank: S2S3

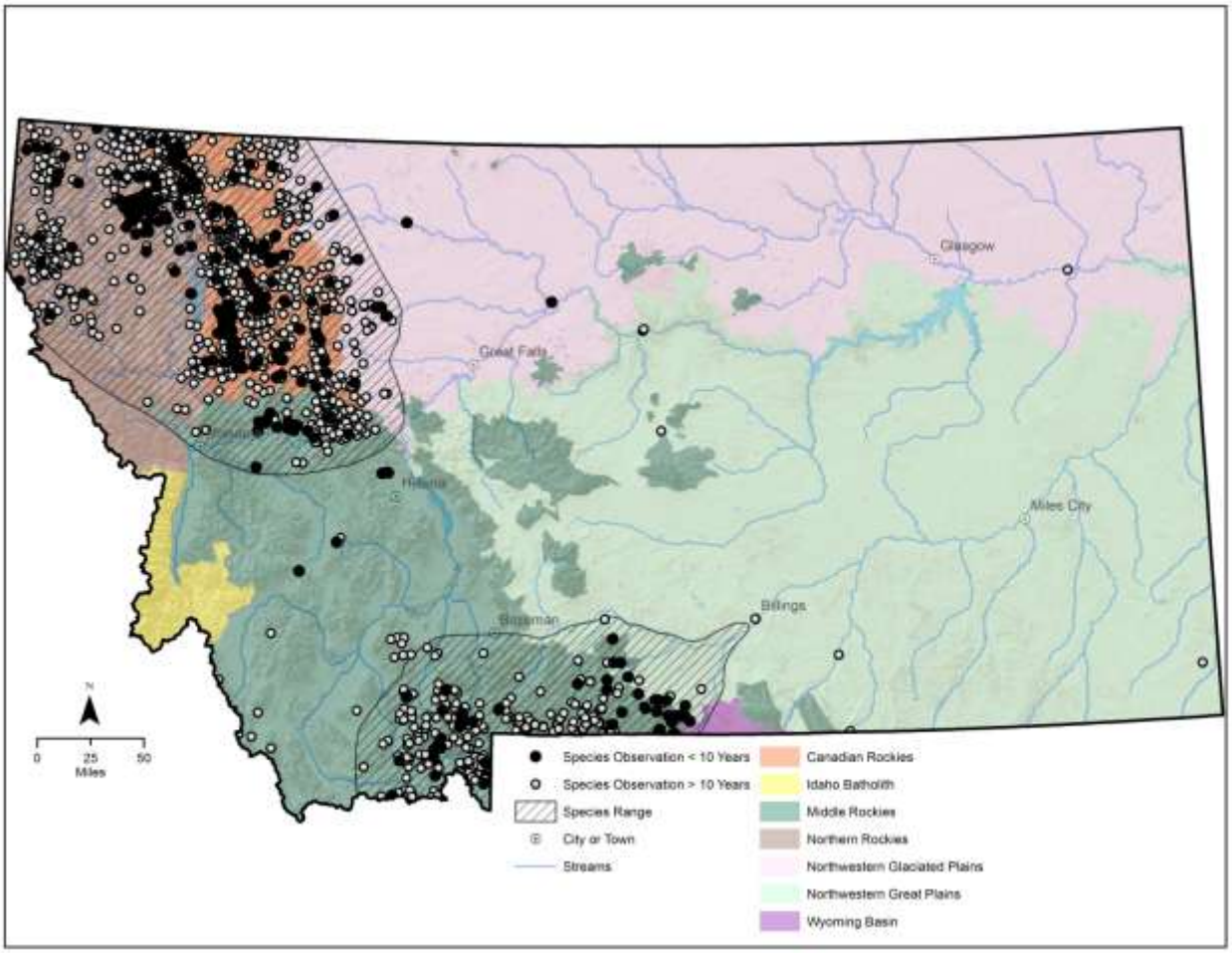

Figure 87. Montana range and observations of the grizzly bear

Habitat

In Montana, grizzlies primarily use meadows, seeps, riparian zones, mixed shrub fields, closed timber, open timber, side-hill parks, snow chutes, and alpine slabrock habitats. Habitat use is highly variable between areas, seasons, local populations, and individuals (Servheen 1983; Craighead et al. 1982; Aune et al. 1984). Historically, grizzly bears occupied a much broader range into eastern Montana.

Management

On July 28th, 1975, the grizzly bear was designated as threatened in lower 48 states under the ESA. Currently, populations in the Cabinet/Yaak, Northern Continental Divide, and Greater Yellowstone recovery areas are listed as threatened. The Bitterroot Recovery Zone in the Bitterroot Mountains of Montana and Idaho was designated in anticipation of reintroduction of grizzly bears where they would be classified as experimental nonessential. This reintroduction never took place, but in 2007 a naturally colonizing grizzly bear was killed in the Idaho portion of this recovery area.

In 2007, USFWS announced that the Yellowstone Distinct Population Segment of grizzly bears was a recovered population no longer meeting the ESA's definition of threatened (Federal Register 2007). In 2009 the Yellowstone Distinct Population Segment was relisted as threatened as a result of a U.S. District ruling that stated declines in whitebark pine and inadequate conservation plans still threaten the species. This ruling has been upheld by the U.S. 9th Circuit Court of Appeals. USFWS completed a five-year review of the status of grizzly bears in August of 2011. There are numerous policies, e.g., MCA 12.9.103 that outline guidelines for FWP to promote the conservation and responsive management of grizzly bears in Montana. Regional specific management plans include the *Grizzly Bear Management Plan for Southwestern Montana* (FWP 2002; 2013), the *Grizzly Bear Management Plan for Western Montana* (Dood et al. 2006), and conservation strategies for the Yellowstone and Northern Continental Divide Ecosystem grizzly bear populations, along with various tribal, National Forest, and National Park plans and policies. Most of these management plans are centered on three major themes: management of habitat to ensure grizzly bears have large expanses of suitable interconnected lands in which to exist, management of grizzly bear/human interactions that can result in death of the bears involved, and monitoring to determine population size and trends. Consult the management plans listed below for specifics on grizzly bear management.

Management Plans

Dood, A. R., S. J. Atkinson, and V. J. Boccadori. 2006. Grizzly Bear Management Plan for Western Montana: final programmatic environmental impact statement 2006-2016. Montana Department of Fish, Wildlife and Parks, Helena, Montana. 163 pp.

Interagency Conservation Strategy Team. 2007. Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area. 86 pp.

Interagency Conservation Strategy Team. *In prep*. Final Conservation Strategy for the Grizzly Bear in the Northern Continental Divide Ecosystem.

Montana Fish, Wildlife & Parks. 2001. Conservation Plan for Grizzly Bears in Montana. Pursuant to Section 6(C)(1) of the Endangered Species Act and Montana Fish, Wildlife & Parks Endangered Wildlife Program E-6. Helena, Montana.

Montana Fish, Wildlife & Parks. 2013. Grizzly Bear Management Plan for Southwestern Montana 2013.

Servheen, C. 1993. Grizzly bear recovery plan. Unpublished report to the U.S. Fish and Wildlife Service. University of Montana, Missoula, Montana. 181 pp.

Shaffer, M. 1992. Keeping the grizzly bear in the American West: an alternative recovery plan. The Wilderness Society, Washington, DC.

U.S. Fish and Wildlife Service. 1982. Grizzly bear recovery plan. Unpublished report prepared in cooperation with recovery team leader Don L. Brown of the Montana Department of Fish, Wildlife & Parks. 195 pp.

Grizzly Bear Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Genetic fragmentation among Montana populations Loss of connectivity	Genetic fragmentation among Montana populations Loss of connectivity	Continue/support ongoing research projects, including genetic analysis projects Maintain opportunity for connectivity among and between populations
Habitat loss, degradation, and fragmentation	Habitat loss, degradation, and fragmentation	Encourage and support opportunities such as land purchases or conservation easements to protect important grizzly habitats Keep road density at or below current levels to meet management goals outlined for grizzly recovery in western and southwest Montana Implement and follow state management plans and conservation strategies
Human-bear and bear-livestock interactions	Human-bear and bear-livestock interactions	Continue and expand "living with bears" educational efforts in areas currently occupied or likely to be reoccupied by grizzly bears Continue interagency management efforts Identify if recreational use needs to be managed in some areas to reduce conflicts with grizzly bears Conduct proactive management including public outreach, utilizing Montana citizens Reduce human-caused mortality, including vehicle and train caused mortalities

Bison (*Bos bison*) State Rank: S2

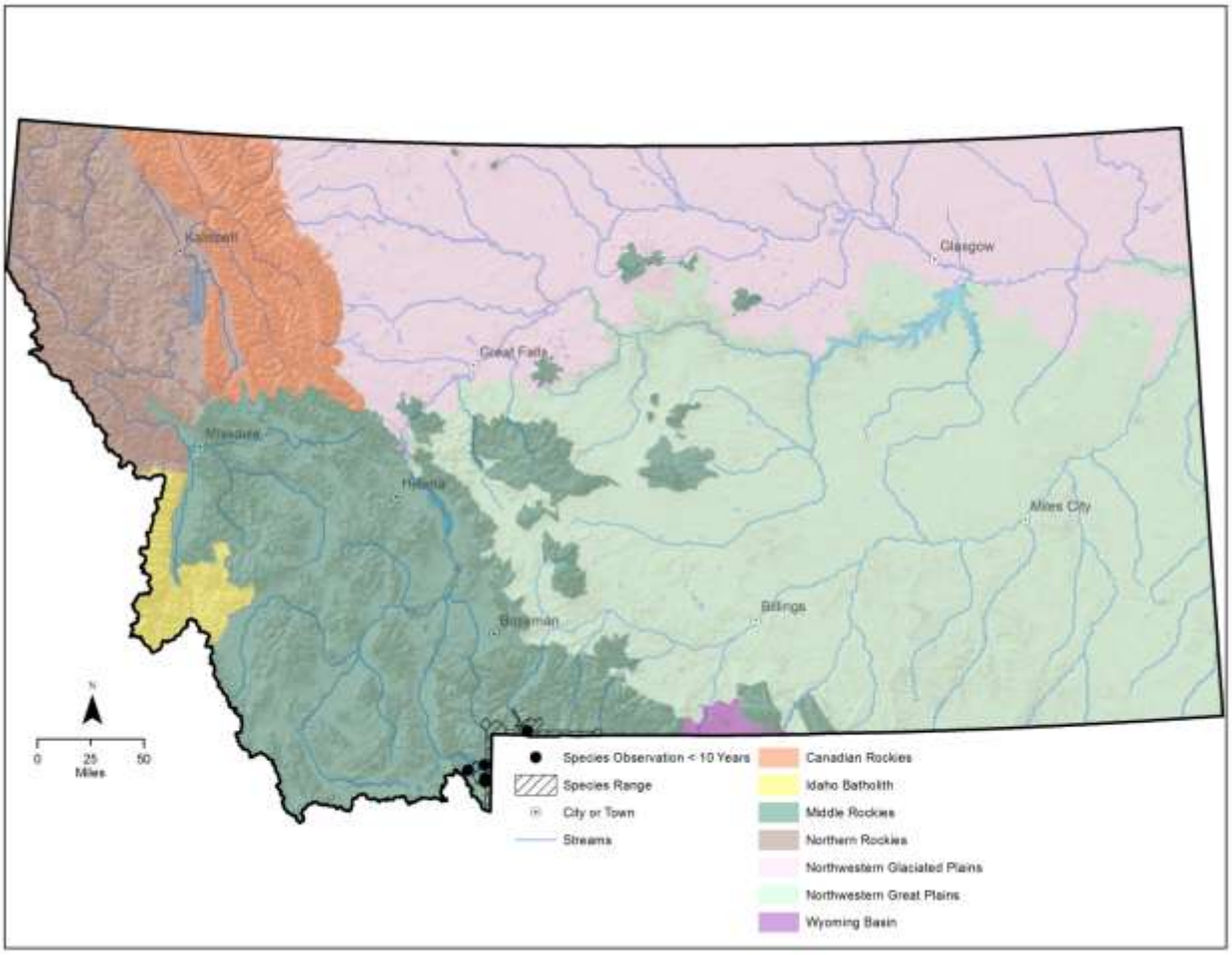

Figure 88. Montana range and observations of bison classified as "game animal" and/or "species in need of disease control"

Habitat

Because of restrictions, currently occupied habitat does not reflect the full natural range for bison. Throughout their range, bison inhabit woodlands and open plains and grasslands. Woodlands and openings in boreal forests, meadows, and river valleys are used in the northern parts of their range. Like other large grazers, they are attracted to burn areas during the next growing season (Shaw and Carter 1990). During the growing season at the Konza Prairie in northeastern Kansas, they preferred areas that had been burned in spring. Summer grazing was concentrated in a large watershed area (195 to 295 acres) dominated by warm-season, perennial C4 grasses. In fall and winter they grazed both burned and unburned watersheds more uniformly, but grazed most intensively in areas with large stands of cool-season, C3 grasses (Vinton et al. 1993).

Management

Bison are classified as a "game animal," "domestic livestock," or as a "species in need of disease control" respectively, depending on whether they are found in the wild, in privately held herds

(Adams and Dood 2011), or if their origin is YNP. Their classification also dictates which state agency has management authority, FWP, the Department of Livestock, or both agencies jointly.

Management of bison as wildlife in Montana has been controversial. The presence of brucellosis in these animals and their migration out of YNP into adjacent public and private lands has led to conflicts between private landowners, citizens, public administrative agencies, and public land management agencies. Bison as wildlife in Montana are currently managed under the *Interagency Bison Management Plan* (National Park Service 2000).

There are no permanent bison populations on an annual basis in Montana, and the current distribution of the only wild herd of bison in Montana is the YNP herd. Management of this herd is limited to small areas outside of YNP where they are tolerated. This bison herd is designated as "species in need of disease control" under Montana state statute. Hunting is allowed on this herd (generally mid-November through mid-February) when individuals leave the park and enter Montana. Four tribes also hunt bison that exit the park under existing treaty hunting rights.

The current YNP bison controversy needs to be addressed in a manner to reduce conflict while providing adequate habitat and management for long term persistence of this herd.

Management Plan
Montana Department of Livestock and Montana Fish, Wildlife & Parks. 2000. Interagency bison management plan. 70 pp.

National Park Service. 2000. Bison Management for the State of Montana and Yellowstone National Park. Final Environmental Impact Statement for the Interagency Bison Management Plan for the State of Montana and Yellowstone National Park. Vol. I. August 2000.

Bison Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Existing genetically intact herds are not free ranging with the exception of the YNP herd which still is limited in range outside of Park borders	Existing genetically intact herds are not free ranging with the exception of the YNP herd which still is limited in range outside of Park borders	Establish disease-free bison populations as wildlife in suitable grassland habitats outside YNP where they can function ecologically and operate as keystone species to restore grassland systems Create populations of wild bison that can be harvested and provide economic and social benefits to Montana Work with landowners, other agencies, and NGOs to encourage bison tolerance outside of YNP

Current Impacts	Future Threats	Conservation Actions
Disease (brucellosis)	Disease risk in YNP	Follow recommendations in the *Interagency Bison Management Plan* (National Park Service 2000) Continue development of working relationships with landowners and other constituents

Northern Bog Lemming (*Synaptomys borealis*) State Rank: S2
Species of Greatest Inventory Need

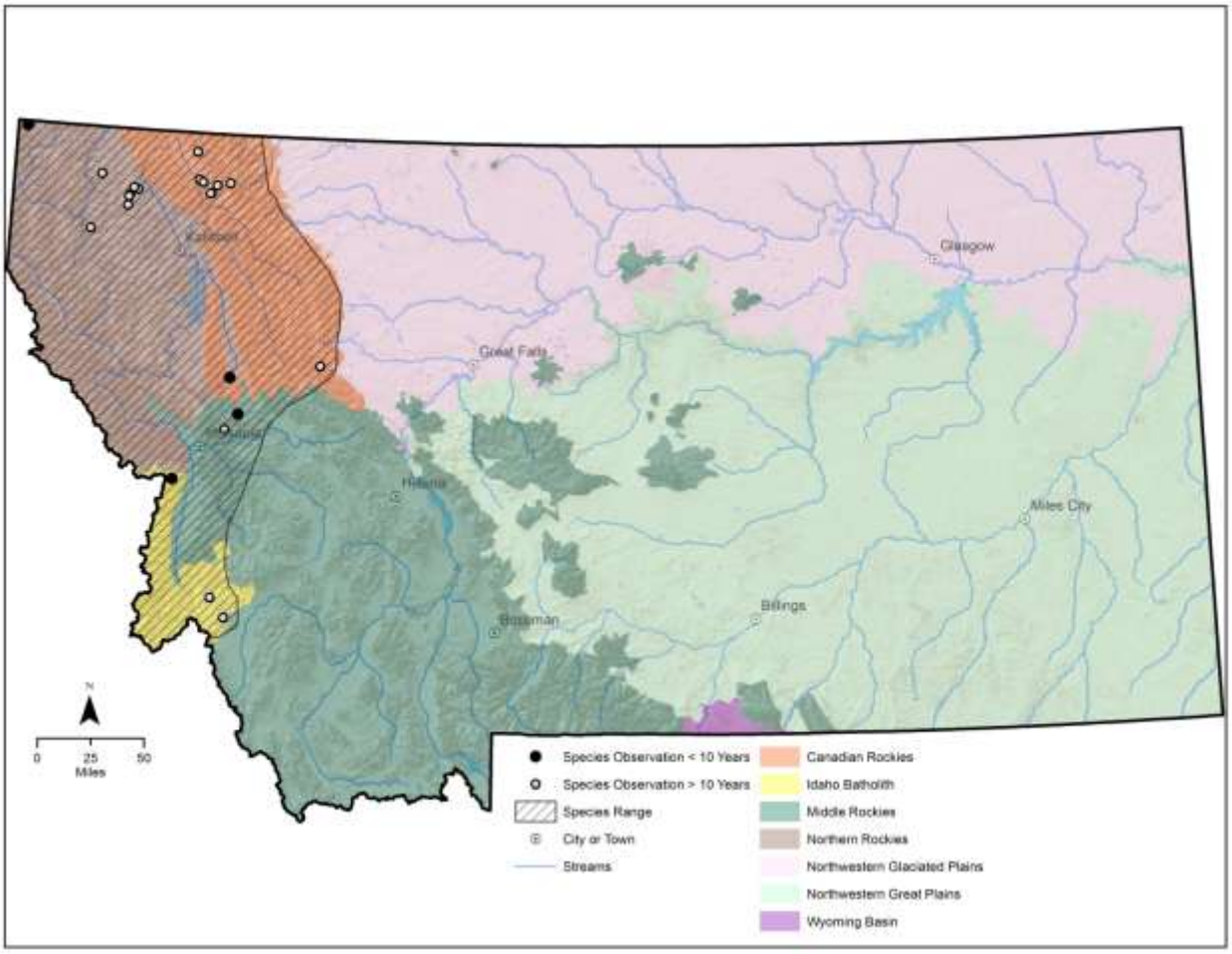

Figure 89. Montana range and observations of the northern bog lemming

Habitat

Northern bog lemmings occupy a variety of habitats throughout their range, especially near the southern edge of their global distribution. Typically, these habitats have high moisture levels and include sphagnum bogs, wet meadows, moist mixed and coniferous forests, montane sedge meadows, krummholz spruce-fir forests with dense herbaceous and mossy understory, alpine tundra, mossy streamsides, and even sagebrush slopes in the case of *S. b. artemisiae* in British Columbia (Clough and Albright 1987; West 1999; Streubel 2000). Within these habitats, they occupy surface runways and burrow systems up to 12 inches deep and can be found in small colonies with population densities that may reach 36 individuals per acre (Streubel 2000). They are active day and night throughout the year, feeding mostly on herbaceous vegetation (Foresman 2012). Young are born in nests that may be underground or on the surface in concealing vegetation. Northern bog lemmings in Montana have been found in at least nine habitat types, including Engelmann spruce, subalpine fir, birch, willow, sedge (*Carex*), spike rush (*Eleocharis*), or combinations of the above, often occurring in wet meadows, fens, or boglike environments. Wright (1950) captured lemmings in a swampy area containing spruce trees, timothy, alder, and other moist-site plants (Wright 1950). The Upper Rattlesnake Creek specimen

was captured in a wet-sedge/bluejoint meadow near subalpine fir (Adelman 1979). Areas with extensive moss mats, primarily sphagnum, are the most likely sites to find new populations (Wright 1950; Reichel and Beckstrom 1994; Reichel and Corn 1997; Pearson 1999).

Management

No coordinated management activities have been developed or implemented for this species in Montana. Nevertheless, some populations on USFS lands are provided added protection through special management/conservation policy guidelines applied to peatlands, including the RNA designation (Chadde et al. 1998). RNA designation typically prohibits manipulative management, such as timber harvest and livestock grazing. The Clean Water Act and state water quality standards protect water quality of these peatlands. Protection guidelines (Reichel and Corn 1997) should be applied to all sites where northern bog lemmings are known to occur, as well as potential peatland sites not yet surveyed for the species.

Management Plan

None.

Northern Bog Lemming Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Outdated survey Poorly understood distribution of the species in Montana		Conserve and/or restore unoccupied potential habitat Consider including species in other comprehensive taxonomic plans Monitor known sites routinely to determine population persistence and trends Explore non-invasive capture techniques, such as scat genetic analysis Target species for survey and inventory
Bogs/fens are threatened by incompatible range management practices, invasion of heavily grazed fens by exotic plants, and potential changes in the water regimes feeding the bogs/fens	Bogs/fens are threatened by incompatible range management practices, invasion of heavily grazed fens by exotic plants, and potential changes in the water regimes feeding the bogs/fens	Work with landowners and land management agencies to closely manage forest activities that may be detrimental to this species

Current Impacts	Future Threats	Conservation Actions
Conversion of forests to meadows by clearcutting, wildfire, or excessive thinning can increase populations of meadow voles and other species that compete with northern bog lemmings	Conversion of forests to meadows by clearcutting, wildfire, or excessive thinning can increase populations of meadow voles and other species that compete with northern bog lemmings	Maintain a buffer zone of 300 feet surrounding sphagnum or other fen moss mats or wetland areas that could provide corridors for dispersal to adjacent patches of suitable habitat
Human disturbances (timber harvesting and roads) are directly related to the decreased diversity of vascular plants, many of which are important to the diet of northern bog lemmings	Human disturbances (timber harvesting and roads) are directly related to the decreased diversity of vascular plants, many of which are important to the diet of northern bog lemmings	Work with landowners and land management agencies to limit activities that may be detrimental this species
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routinely monitor known populations

Arctic Shrew (*Sorex arcticus*) State Rank: S1S3

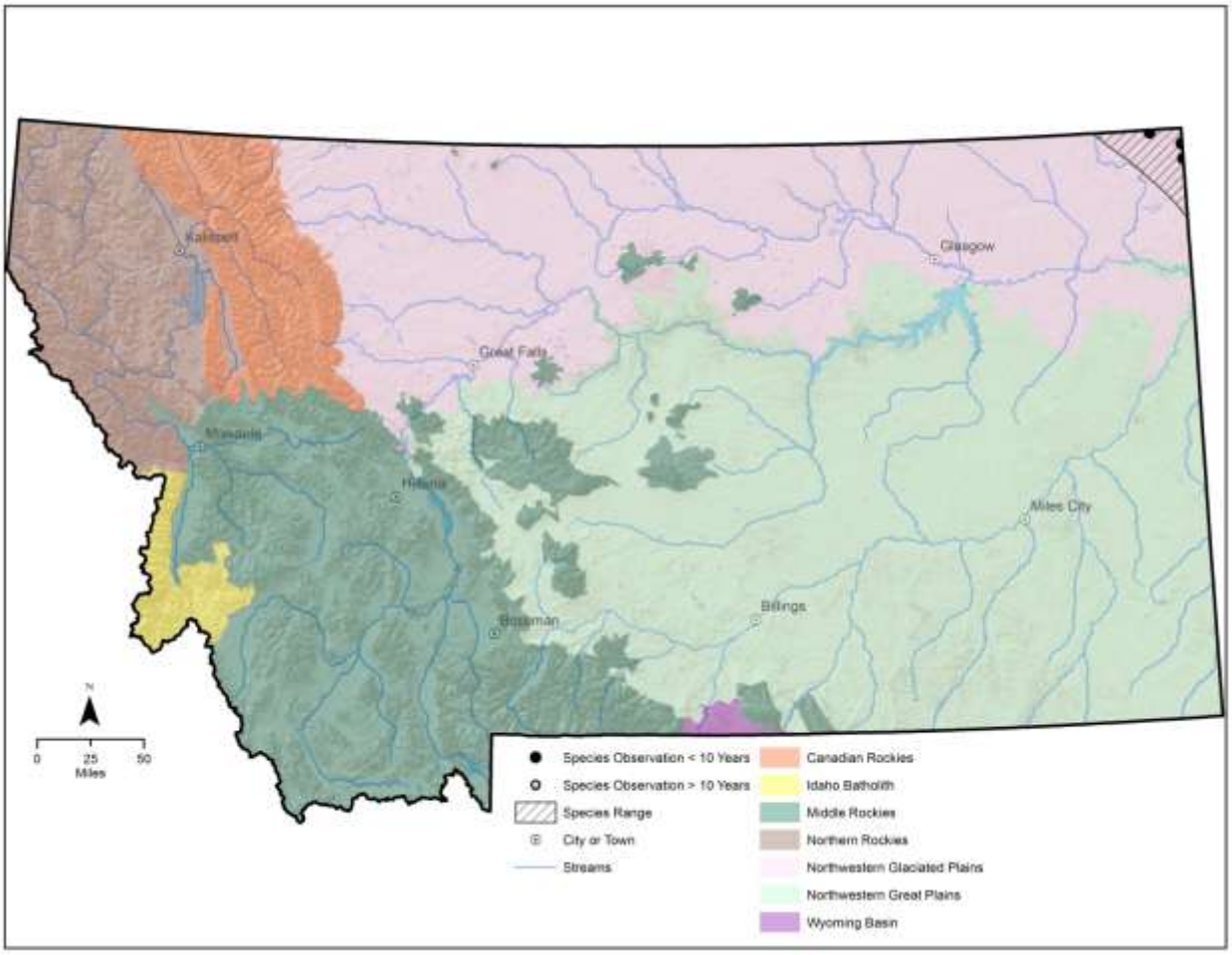

Figure 90. Montana range and observations of the arctic shrew

Habitat

Little is known about habitat requirements of the arctic shrew in Montana. All individuals captured were in wet meadows adjacent to marshes or in the sandy flats of creek floodplains (Foresman 2012).

Management

No management needs have been identified nor have any measures been enacted for the conservation of arctic shrew in Montana. Nevertheless, wetland drainage or alteration has the potential to negatively impact local populations. Additional surveys for arctic shrew can provide the basis for development of conservation protocols by determining its full distribution in Montana, the array of habitats in which it occurs, its relative abundance in different habitats, and if properly designed, an idea of how different habitat disturbances affect this shrew at the margin of its global range.

Management Plan

None.

Arctic Shrew Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor		Target species for survey and inventory
Conversion of native habitat to cropland agriculture	Conversion of native habitat to cropland agriculture	Protect habitat that is at highest risk of conversion to cropland through the possible use of easements acquisition Work with landowners and land management agencies to limit activities that may be detrimental to this species
Oil and gas development	Oil and gas development	Follow recommendations in FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (FWP In prep)
Wetland degradation or loss	Wetland degradation or loss	Work with landowners and land management agencies to limit activities that may be detrimental to this species

Dwarf Shrew (*Sorex nanus*) State Rank: S2S3

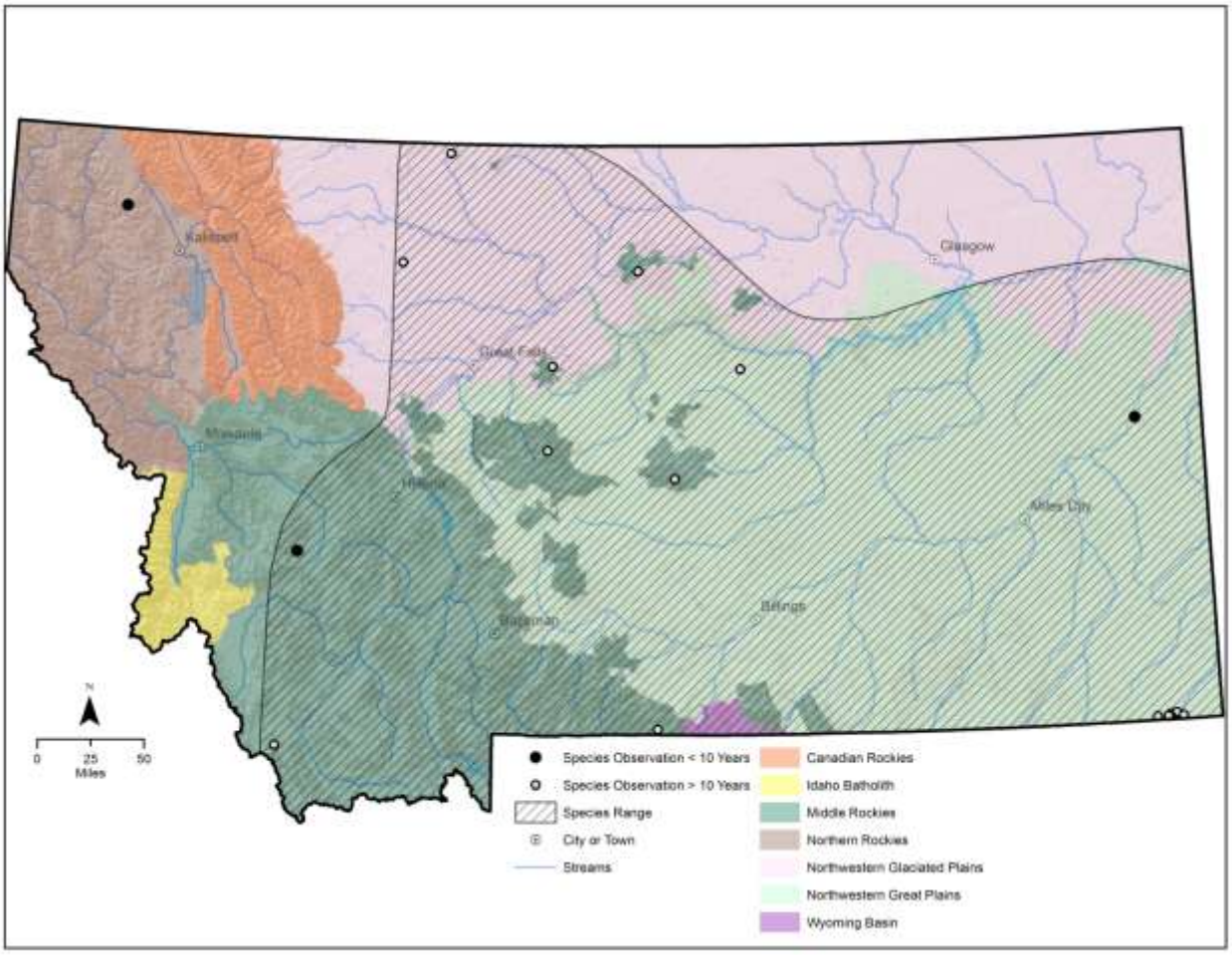

Figure 91. Montana range and observations of the dwarf shrew

Habitat

In general, the dwarf shrew is found in a variety of habitats, including rocky areas and meadows in alpine tundra and subalpine coniferous forest (spruce-fir), rocky slopes and meadows in lower-elevation forest (e.g., ponderosa pine, aspen, Douglas-fir) with a mixed shrub component, sedge marsh, subalpine meadow, arid sagebrush slopes, arid shortgrass prairie, dry stubble fields, and pinyon-juniper woodland (Hoffmann and Owen 1980, Berna 1990, Kirkland et al. 1997, Rickart and Heaney 2001, Hafner and Stahlecker 2002).

Habitats where dwarf shrews have been documented in Montana are similar in variety to those occupied elsewhere in the global range. Many have been taken in rocky locations in alpine terrain and subalpine talus (0.75 to four inches diameter) bordered by spruce-fir, lodgepole pine, or Douglas-fir and aspen; lesser numbers have been captured in montane grassland, sagebrush-grassland with 22% bare ground, and prairie riparian habitat dominated by green ash, rose, and timothy (Hoffmann and Taber 1960, Pattie and Verbeek 1967, Hoffmann et al. 1969, Thompson 1977, MacCracken 1985). Dwarf shrews appear to be adapted to many different habitat conditions (Foresman 2012).

Management

No management measures have been enacted for the dwarf shrew in Montana. However, alteration or removal of grassland and sagebrush through fire, herbicides, or mechanical methods, may impact local lower-elevation populations. Measures taken to protect a diversity of size and cover classes of grassland and sagebrush will likely contribute to the conservation of dwarf shrew. Reclamation/restoration of native prairie appears to provide some measure of effective mitigation for strip-mining activity in prairie regions (Kirkland et al. 1997), but this needs additional study. Surveys for dwarf shrew can provide the basis for development of conservation protocols by determining its full distribution in Montana, the array of habitats in which it occurs, its relative abundance in different habitats, and if properly designed, an idea of how different habitat disturbances affect this rare shrew.

Management Plan

None.

Dwarf Shrew Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor		Target species for survey and inventory

Northern Short-tailed Shrew (*Blarina brevicauda*) State Rank: S1S3

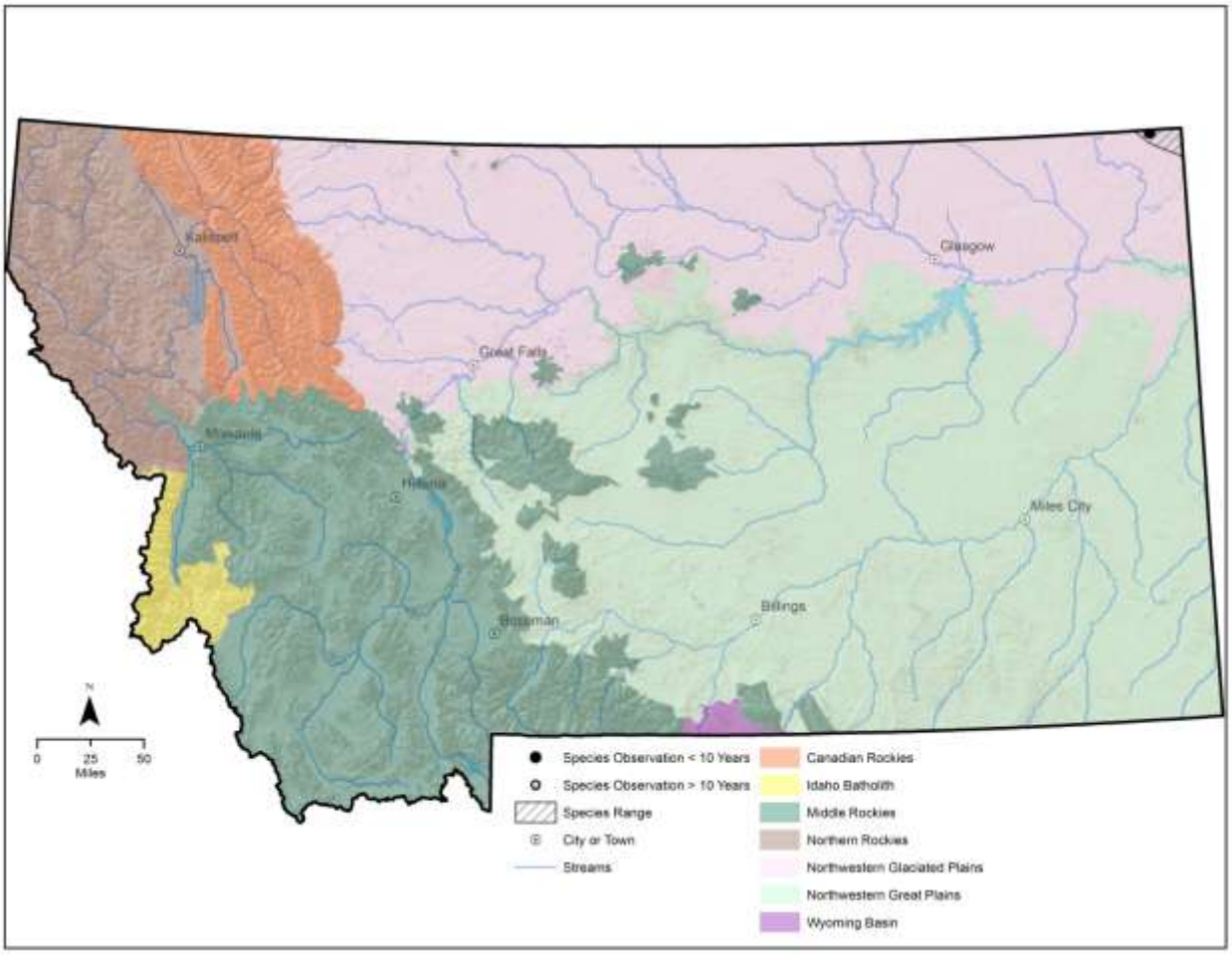

Figure 92. Montana range and observations of the northern short-tailed shrew

Habitat

Considered hypothetical in extreme northeastern Montana since at least 1968 (Hoffmann and Pattie 1968) until two were captured in August 2005 in Sheridan County in marshy, prairie pothole habitat about 1.4 miles south of the Saskatchewan border. Farther east, within the main range of the species, northern short-tailed shrews are most common in hardwood forests with deep leaf litter and in brushy sites adjacent to ponds and streams, and less common in conifer forest and grassland. In Manitoba this shrew is reported to be most common in grass-sedge marsh and willow-alder shrubs (Jones et al. 1983, van Zyll de Jong 1983, George et al. 1986). Northern short-tailed shrews seem to prefer wet areas, likely because the soil is loose for burrowing and there is a greater amount of prey (Foresman 2012).

Management

No management needs have been identified and no measures have been enacted to promote northern short-tailed shrew conservation in Montana. Wetland drainage or alteration, and loss of riparian vegetation (e.g. aspen, birch, willow, cottonwood) in woody draws and around springs or seeps, has the potential to negatively impact local populations. Additional surveys for the northern short-tailed shrew can provide the basis for development of conservation protocols by

determining its full distribution in Montana, the array of habitats in which it occurs, its relative abundance in different habitats, and if properly designed, an idea of how different habitat disturbances affect this shrew at the margin of its global range.

Management Plan
None.

Northern Short-tailed Shrew Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor		Target species for survey and inventory
Conversion of native habitat to cropland agriculture	Conversion of native habitat to cropland agriculture	Protect habitat that is at highest risk of conversion to cropland through the possible use of easements acquisition Work with landowners and land management agencies to limit activities that may be detrimental to this species
Oil and gas development	Oil and gas development	Follow recommendations in FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (FWP In prep)
Wetland degradation or loss	Wetland degradation or loss	Work with landowners and land management agencies to limit activities that may be detrimental to this species

White-tailed Prairie Dog (*Cynomys leucurus*) State Rank: S1

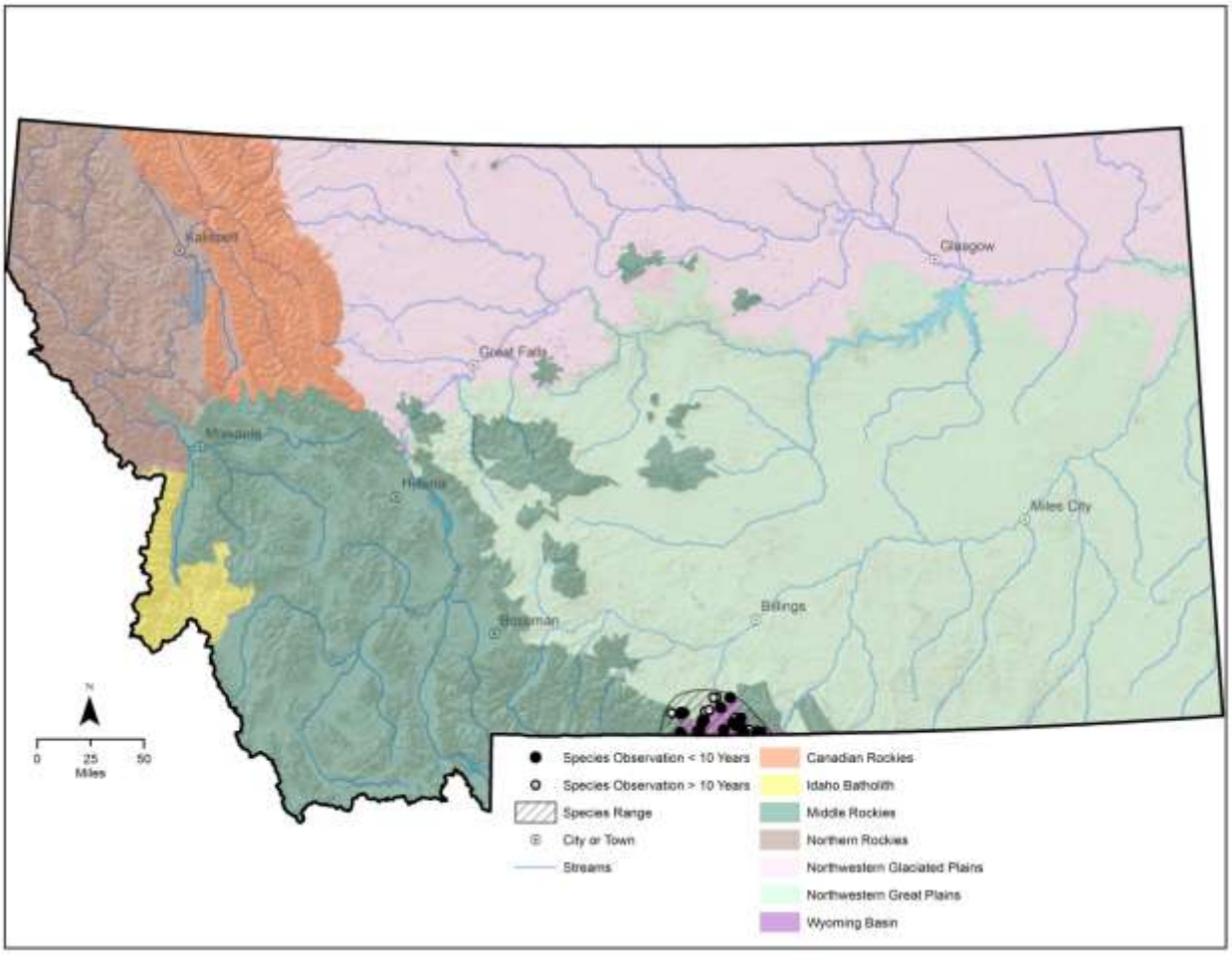

Figure 93. Montana range and observations of the white-tailed prairie dog

Habitat

Throughout their range, WTPDs inhabit xeric sites with mixed stands of shrubs and grasses. In Montana they inhabit sites dominated by Nuttall saltbrush with lesser amounts of big sage and areas with povery sumpweed (Flath 1979; Foresman 2012). They live at higher elevations and in meadows with more diverse grass and herb cover than do black-tailed prairie dogs (Hoffmann, in Wilson and Ruff 1999), and their range in Montana is at higher elevations than other sites within their distribution.

Management

Prairie dogs in Montana are currently an unregulated nongame species. Shooting of prairie dogs on public lands is allowed unless covered under a specific area closure, e.g., UL Bend on the Charles M. Russell NWR. WTPDs are managed under the *Conservation Plan for Black-tailed and White-tailed Prairie Dogs in Montana* (Montana Prairie Dog Working Group 2002). WTPDs were found to be not warranted for listing under the ESA in May, 2010. Threats to the species however remain throughout its range to include habitat conversion and loss and sylvatic plague.
Translocation of WTPD in south central Montana was intended to reestablish the species at colonies from which they had been extirpated and to provide prey and habitat for a variety of

other wildlife. Translocation was also intended to maintain a viable population of WTPD in Montana. FWP translocated 44 WTPD within Carbon County with these intentions in mind and to remove individuals at colonies under threat from highway re-alignment. WTPD conservation in Montana also benefitted from FWP's leadership of the Montana Prairie Dog Working Group as well as involvement with the Western Association of Fish and Wildlife Agencies' (WAFWA) efforts to conserve prairie dogs.

Management Plans
Bureau of Land Management. 1979. Habitat management plan for prairie dog ecotypes. BLM, Montana State Office. Wildlife Habitat Area MT-02-06-07-S1. 61 pp.

Montana Prairie Dog Working Group. 2002. Conservation Plan for Black-tailed and White-tailed Prairie Dogs in Montana. Montana Fish, Wildlife and Parks. Helena Montana. 51 pp.

White-tailed Prairie Dog Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Habitat loss due to conversion of native rangelands to agriculture, and to a lesser degree, residential development	Habitat loss due to conversion of native rangelands to agriculture, and to a lesser degree, residential development	Continue to develop, refine, and implement financial incentives for landowners to maintain prairie dogs Support strategic conservation easements to enhance and protect important native habitat Work with landowners and land management agencies to limit activities that may be detrimental to this species
Disease, particularly sylvatic plague	Disease, particularly sylvatic plague	Assist in funding research projects targeting effects of disease on prairie ecosystems Use deltamethrin to protect prairie dog populations until a sylvatic plague vaccine is available Work through cooperative agreements with private landowners and land management agencies to manage for healthy populations of prairie dogs
Incompatible grazing practices	Incompatible grazing practices	Work with landowners and land management agencies to ensure species needs are adequately addressed in grazing and RMPs

Current Impacts	Future Threats	Conservation Actions
		Support livestock grazing management that maintains or improves native rangeland integrity Support research evaluating livestock grazing systems that enhance WTPD habitat features and ultimately WTPD populations
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary

Black-footed Ferret (*Mustela nigripes*) State Rank: S1

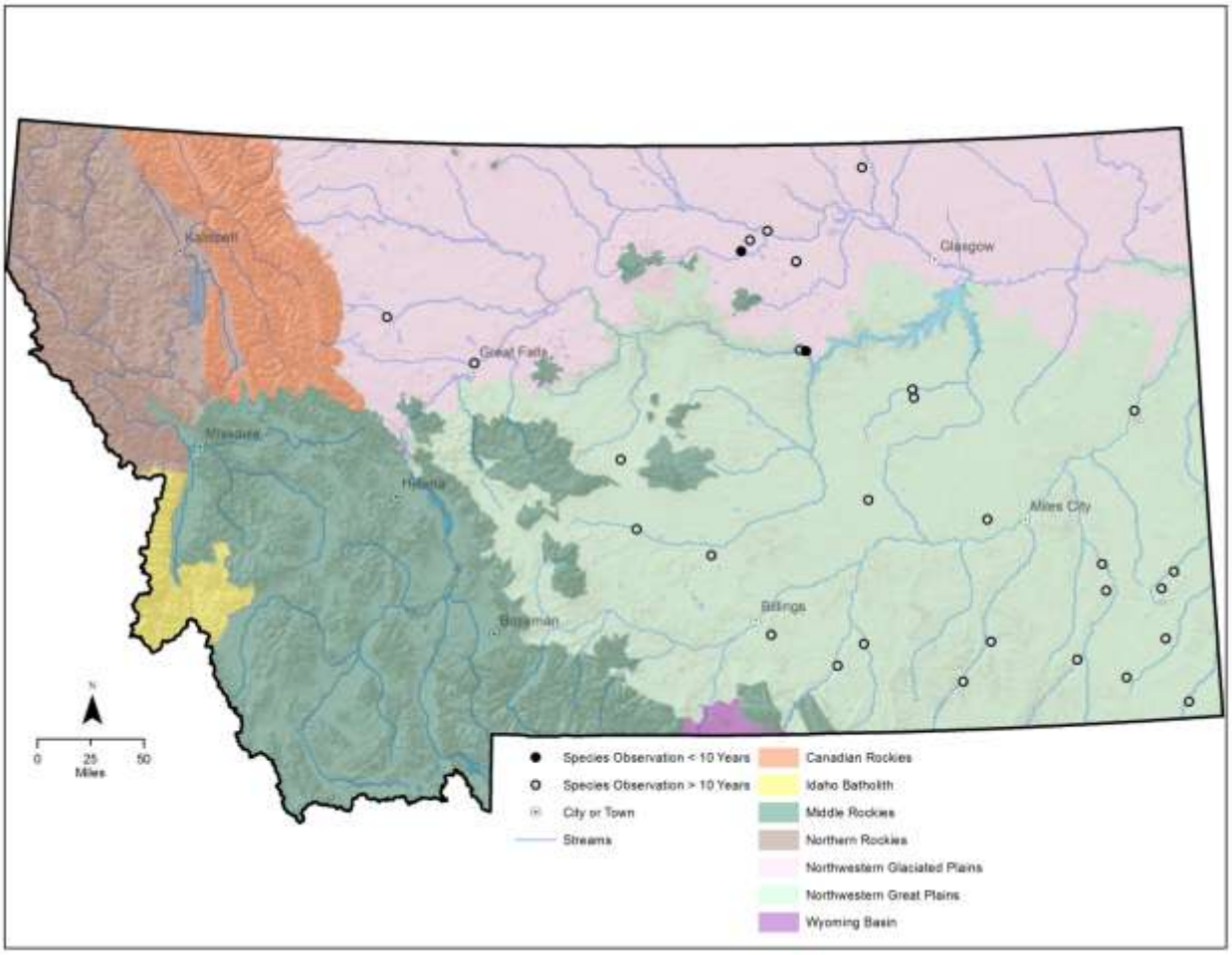

Figure 94. Montana observations of the black-footed ferret

Habitat

Black-footed ferrets are intimately tied to prairie dogs (*Cynomys* spp.) throughout their range and have only been found in association with prairie dogs. They are therefore limited to the same open habitat used by prairie dogs: grasslands, steppe, and shrub-steppe. Black-footed ferrets do not dig their own burrows, but instead rely on abandoned prairie dog burrows for shelter and rearing kits. Only large complexes (several thousand acres of closely spaced colonies) can support and sustain a breeding population of black-footed ferrets. It has been estimated that about 100 to 150 acres of prairie dog colony is needed to support one ferret, and females with litters have never been found on colonies smaller than 120 acres (Miller et al. 1996). Ferrets scent-mark to maintain spatial separation (Richardson 1986).

Management

Black-footed ferrets have been extirpated from most of their former large range largely as a result of loss of habitat due to prairie dog control programs, conversion of native prairie to cropland, and disease (USFWS 2013b) and have been listed as endangered since 1967. Canine distemper and sylvatic plague, in conjunction with captures for captive breeding, resulted in extirpation of the last known wild population near Meeteetse, Wyoming, by early 1987. See

Miller et al. (1996) for more information on the discovery of the Meeteetse ferrets and subsequent distemper-caused decline and captive breeding decisions that occurred in 1985. Currently the only known surviving populations are the result of captive-bred ferret reintroductions. Reintroductions have occurred in Montana on federal and tribal land since 1994 with varying success. Predation by coyotes and badgers and the loss of prairie dogs to sylvatic plague appear to be the primary failures of reintroduction efforts. Some wild reproduction has occurred, but no self-sustaining populations have been established in Montana.

In Montana, the goal is to reestablish two viable populations with a minimum of 50 breeding adults in each (FWP 2013f). Nationwide, the objective is to increase the captive population to 280 breeding adults and to establish a wild pre-breeding population of 1,500 adults in 10 or more locations by 2020 (USFWS 2013b). A Programmatic Safe Harbor Agreement with 12 states was completed in October 2013. This is an important step to recover this species.

Management Plans
Anderson, M. E. et al. 1978. Black-footed ferret recovery plan. U.S. Fish and Wildlife Service Black-footed Ferret Recovery Team. 150 pp.

Bureau of Land Management. 1979. Habitat management plan prairie dog ecotypes. BLM, Montana State Office. Wildlife Habitat Area MT-02-06-07-S1. 61 pp.

Christopherson, D., R. Stoneberg, R. Matchett, D. Biggins, J. Grensten, A. Dood, B. Haglan. 1994. Black-footed ferret reintroduction in Montana: project description and 1994 protocol. 31 pp plus appendix.

Montana Fish, Wildlife & Parks. 1992. North-central Montana black-footed ferret reintroduction and management plan. Prepared by North Central Montana Working Group. 59 pp.

U.S. Fish and Wildlife Service. 1988. Black-footed ferret recovery plan. Denver, Colorado. 154 pp.

U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants: establishment of a nonessential experimental population of black-footed ferrets in north-central Montana; final rule. Federal Register 59:42696-42715.

U.S. Fish and Wildlife Service. 2013. Recovery plan for the black-footed ferret (*Mustela nigripes*). Denver, Colorado. 157 pp.

Black-footed Ferret Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Disease, such as canine distemper and sylvatic plague	Disease, such as canine distemper and sylvatic plague	Continue monitoring diseases that impact the health of populations and support research working to identify prevention measures

Current Impacts	Future Threats	Conservation Actions
		Vaccinate black-footed ferrets in the wild against sylvatic plague and canine distemper
Lack of prey base due to declining prairie dog colonies	Lack of prey base due to declining prairie dog colonies	Use oral plague vaccine, if proven effective, on prairie dog towns that ferrets use or where ferrets may be released Continue to develop, refine, and implement financial incentives for landowners to maintain prairie dogs Work with private landowners and land management agencies through cooperative agreements to manage for healthy populations of prairie dogs Continued management and potential enhancement to prairie dog colonies Use deltamethrin to protect prairie dog populations until a sylvatic plague vaccine is available Construct vegetative barriers and use grazing to manage undesired prairie dog colony expansion surrounding reintroduction sites Develop black-footed ferret conservation plans to expand prairie dog habitat at existing and potential reintroduction sites Seek authorization to regulate take of prairie dogs where take might be affecting ferret recovery

Current Impacts	Future Threats	Conservation Actions
Reduction of habitat	Reduction of habitat	Continue to develop, refine, and implement financial incentives for landowners to maintain prairie dogs Support strategic conservation easements to enhance and protect important native habitat Work with landowners and land management agencies to limit activities that may be detrimental to this species and stress the importance to maintain healthy habitats for black-footed ferrets Provide incentives to maintain grazed grasslands over conversion to croplands
Failed success of reintroduction efforts	Failed success of reintroduction efforts	Continue supporting future reintroduction efforts based on the adaptive management paradigm
Lack of funding for continued reintroduction efforts	Lack of funding for continued reintroduction efforts	Collaborate with partners to find additional funding for reintroduction efforts
	Climate change altering habitat characteristics (e.g., air and water temperature, precipitation timing and amount)	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary

Reptiles

Milksnake (*Lampropeltis triangulum*) State Rank: S2

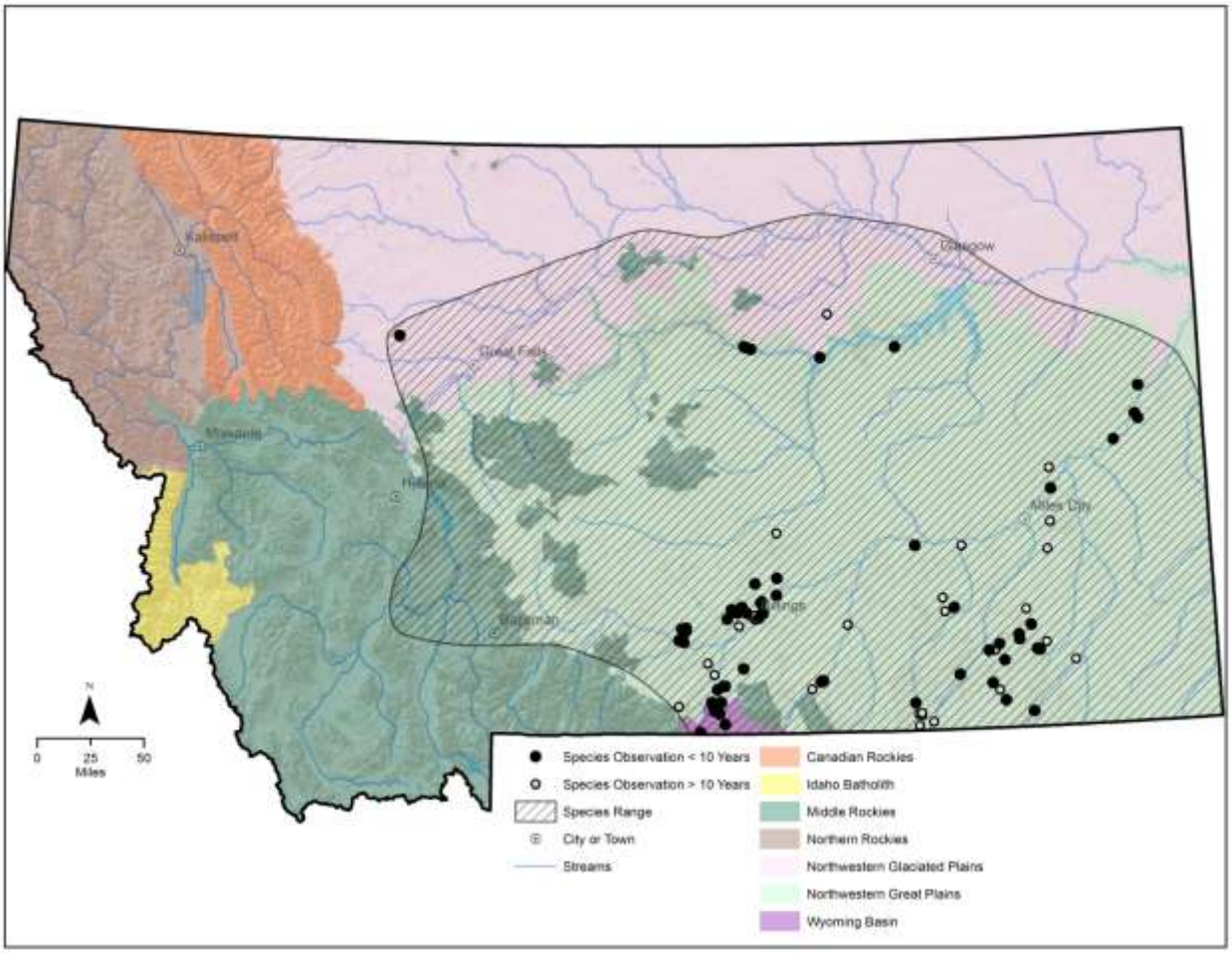

Figure 95. Montana range and observations of the milksnake

Habitat

Little specific information is available for this species. Milksnakes have been reported in areas of open sagebrush grassland habitat (Dood 1980) and ponderosa pine savannah with sandy soils (Hendricks 1999; B. Maxell, personal communication; L. Vitt, personal communication), most often in or near areas of rocky outcrops and hillsides or badland scarps, sometimes within city limits.

Management

So few recent milksnake records exist for Montana (Maxell et al. 2003) that it is difficult to determine if management activity is needed. Nevertheless, the widely scattered recent records indicate that milksnakes continue to occupy a large part of the known range in the state, and some sites near a large urban center have remained occupied for the last 40 to 45 years (L. Vitt, personal communication). Management for this species is hampered by a lack of basic information on abundance, food habits, and habitat associations.

Management Plan
None

Milksnake Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Distribution, status, and biology are poorly understood	Distribution, status, and biology are poorly understood	Develop a comprehensive taxonomic management plan (e.g., for reptiles) that includes the milksnake Specifically survey for this species in suitable habitat to further define its range in Montana
Pet trade industry	Pet trade industry	Increase public education and information on reptile biology and raise awareness of the importance of den and nest sites

Smooth Greensnake (*Opheodrys vernalis*) State Rank: S2
Species of Greatest Inventory Need

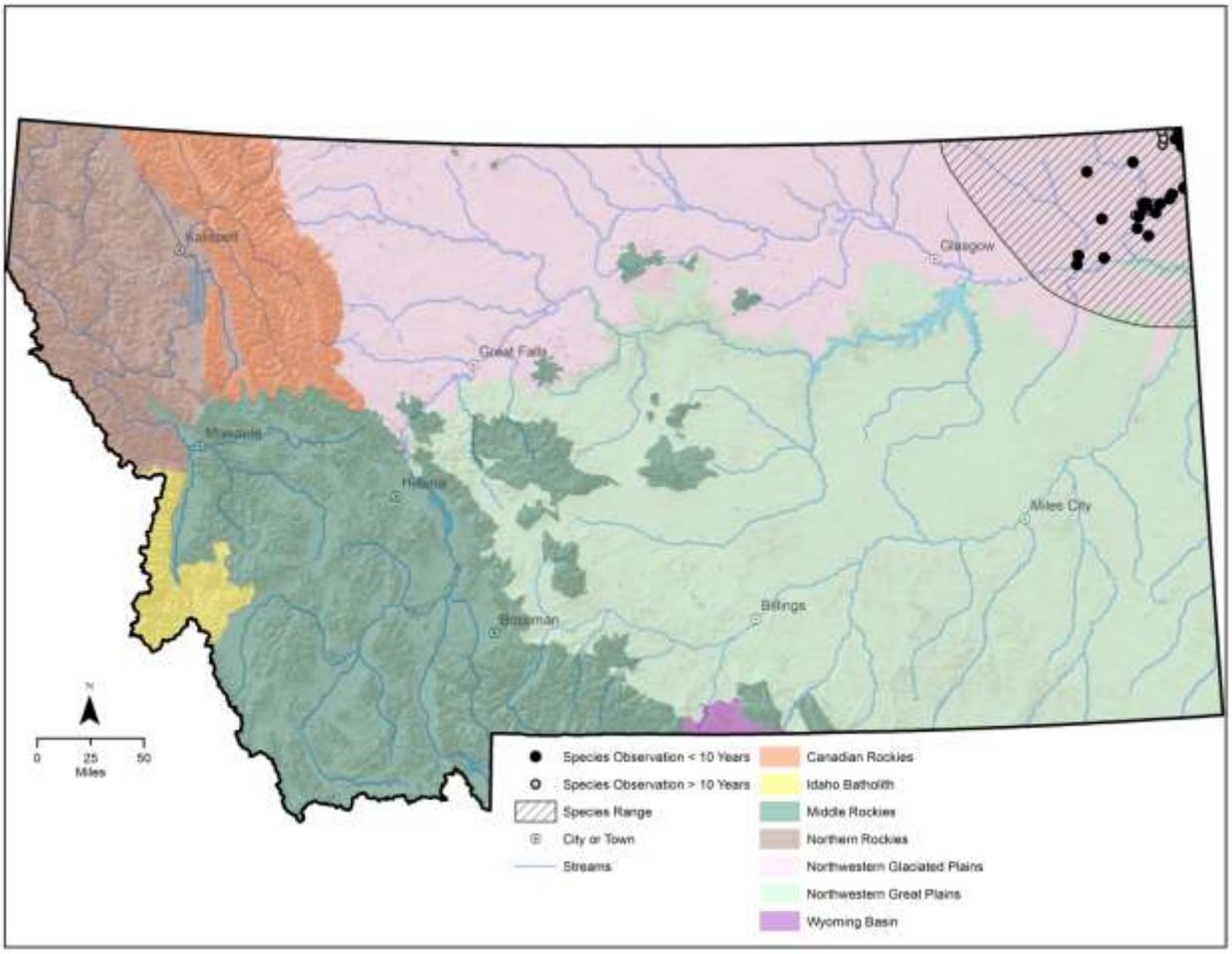

Figure 96. Montana range and observations of the smooth greensnake

Habitat

Little information is available for the species in Montana, though it has been reported on residential lawns, in city parks, along ditches in the prairie pothole region, and around wetland complexes. Based upon observations outside Montana, the smooth greensnake is known to occupy meadows, grassy marshes, moist grassy fields at forest edges, mountain shrublands, stream borders, bogs, open moist woodlands, abandoned farmlands, and vacant lots. Periods of inactivity are spent underground, beneath woody debris and rocks, or in rotting wood. Smooth greensnakes have been found hibernating in abandoned ant mounds. Most activity is restricted to the ground, but they may climb into low vegetation and sometimes enter water (Hammerson 1999). This species may also be found in damp meadows bordering streams and lakes as well as drier, rocky areas, but usually only if grass or similar vegetation is present.

Management Plan

None

Smooth Greensnake Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Distribution, status, and biology in Montana are poorly understood Lacks baseline survey		Develop a comprehensive taxonomic management plan (e.g., for reptiles) that includes the smooth greensnake Specifically survey for this species in suitable habitat to further define its range in Montana
Conversion of native habitat to cropland agriculture	Conversion of native habitat to cropland agriculture	Protect habitat that is at highest risk of conversion to cropland through the possible use of easements acquisition Work with landowners and land management agencies to limit activities that may be detrimental to this species
Oil and gas development	Oil and gas development	Follow recommendations in FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (FWP In prep)
Pet trade industry	Pet trade industry	Increase public education and information on reptile biology and raise awareness of the importance of den and nest sites
Wetland degradation or loss	Wetland degradation or loss	Work with landowners and land management agencies to limit activities that may be detrimental to this species

Western Hog-nosed Snake (*Heterodon nasicus*) State Rank: S2
Species of Greatest Inventory Need

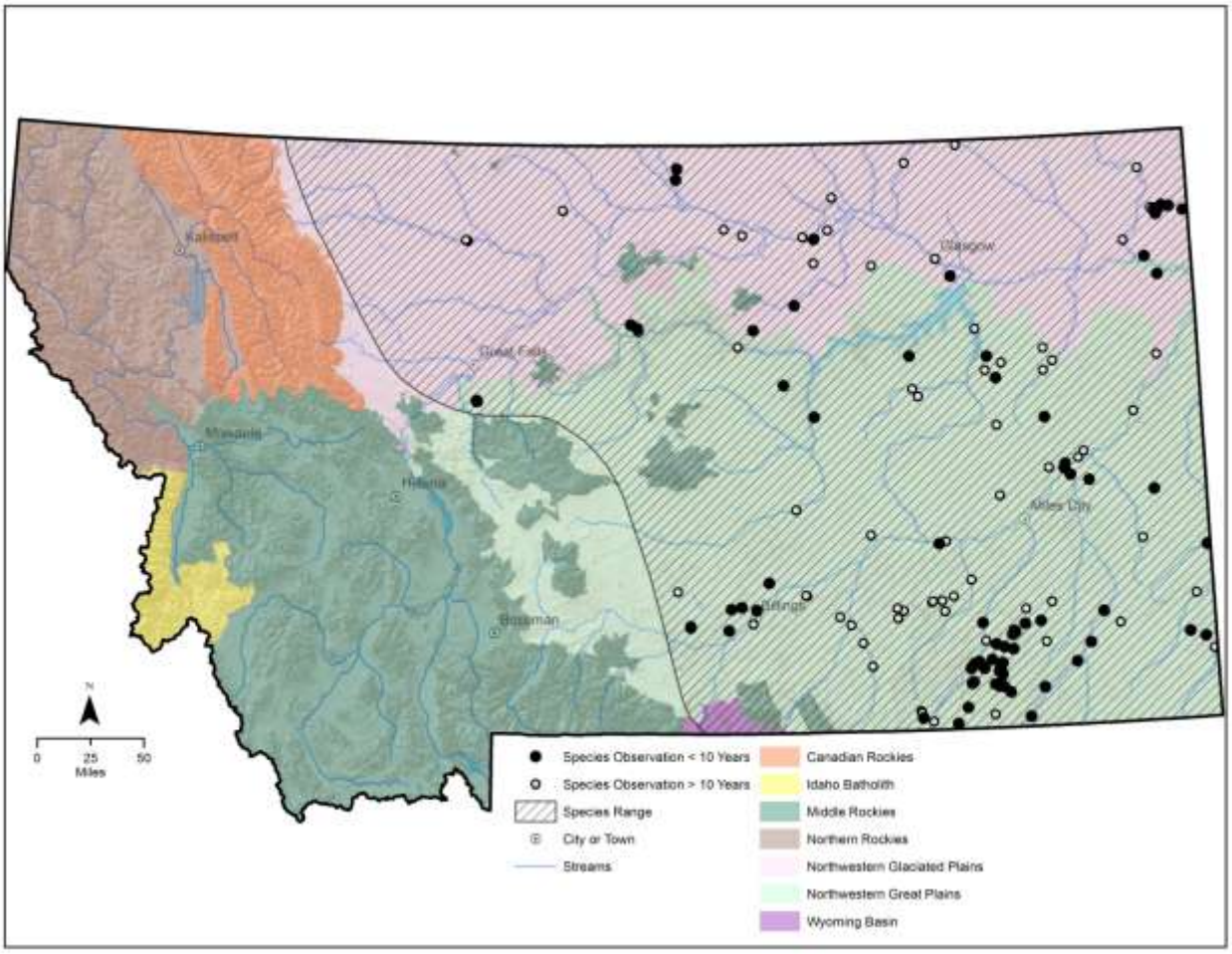

Figure 97. Montana range and observations of the western hog-nosed snake

Habitat

Little specific information for this species in Montana is available. Western hog-nosed snakes have been reported in areas of sagebrush grassland habitat (Dood 1980) and near pine savannah in grassland underlain by sandy soil (Reichel 1995; Hendricks 1999).

In other locations, their apparent preference for arid areas, farmlands, and floodplains, particularly those with gravelly or sandy soil, has been noted. They occupy burrows or dig into soil and can be found under rocks or debris during periods of inactivity (Baxter and Stone 1985; Hammerson 1999; Stebbins 2003).

Management

Apparently the western hog-nosed snake was relatively abundant in Montana during the late 19th Century, at least in some regions; in 1876 it was the third most common reptile (after the prairie rattlesnake and greater short-horned lizard) along the Missouri River between Fort Benton and the mouth of the Judith River (Cope 1879). The few recent records suggest now the species is uncommon throughout Montana, although its status is largely unknown. Even though this snake

is still encountered across its historical range, it is less abundant than in the 19th century probably due to extensive habitat loss associated with conversion of prairie to agricultural landscapes. As in other regions, an unknown percentage of local populations experience road mortality, as many specimen and observation records are of road-killed individuals. Draining of prairie wetlands may have negative impacts on the prey (toads and frogs particularly, and perhaps turtle eggs) this snake prefers. Management in Montana for this species is hampered by a lack of basic information on abundance, food habits, and habitat associations, but is probably best affected for the long-term by protecting suitable prairie habitats from conversion to agricultural uses.

Management Plan
None

Western Hog-nosed Snake Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Distribution, status, and habitat uses are poorly understood Lacks baseline survey		Develop a comprehensive taxonomic management plan (e.g., for reptiles) that includes the western hog-nosed snake Target species for survey and inventory suitable habitat to further define its range in Montana
Declines in prey (amphibians)	Declines in prey (amphibians)	Survey for both western hog-nosed snakes and their prey base in suitable habitat to continue determining their abundance and range in Montana, as well as availability of prey Work with landowners and other agencies to limit activities that may be detrimental to wetlands and amphibians
Dependent on natural flood regimes that provide gravel and sandy beaches in which they and their amphibian prey can burrow	Dependent on natural flood regimes that provide gravel and sandy beaches in which they and their amphibian prey can burrow	Maintain natural flood regime Work with landowners and other agencies to establish natural flows
Pet trade industry	Pet trade industry	Increase public education on reptile biology and raise awareness of the importance of den and nest sites
Some evidence for declines are potentially associated with habitat loss	Some evidence for declines are potentially associated with habitat loss	Work with landowners and land management agencies to limit activities that may be detrimental to wetlands and amphibians

SPECIES OF GREATEST INVENTORY NEED

There are 24 SGCN that are considered to be in greatest inventory need as well as greatest conservation need. In addition, there are 20 PSOC that are in greatest inventory need. All 44 species have been identified as SGIN either because they lack baseline surveys or they have outdated surveys. This SGIN list includes one amphibian, 20 birds, three fish, 13 mammals, and seven reptiles. Of these, one amphibian, five birds, one fish, one mammal, and two reptiles have a State Rank of S1 or S2 and have conservation actions developed for them under the Species of Greatest Conservation Need section above.

The maps in this section were developed from the Montana Field Guide (MNHP and FWP 2013a) and the Point Observation Database. Please note that some species may have no or few observations identified. This may not be a true representation of their distribution within Montana and the observations only may be incidental as no formal survey has ever been conducted.

AMPHIBIANS

Coeur d'Alene Salamander (*Plethodon idahoensis*) **SGCN**
This species has an outdated survey and needs to be targeted for survey and inventory. For more information, see Coeur d'Alene Salamander under Species of Greatest Conservation Need in the previous section.

BIRDS

Black-billed Cuckoo (*Coccyzus erythropthalmus*)

SGCN
State Rank: S3B

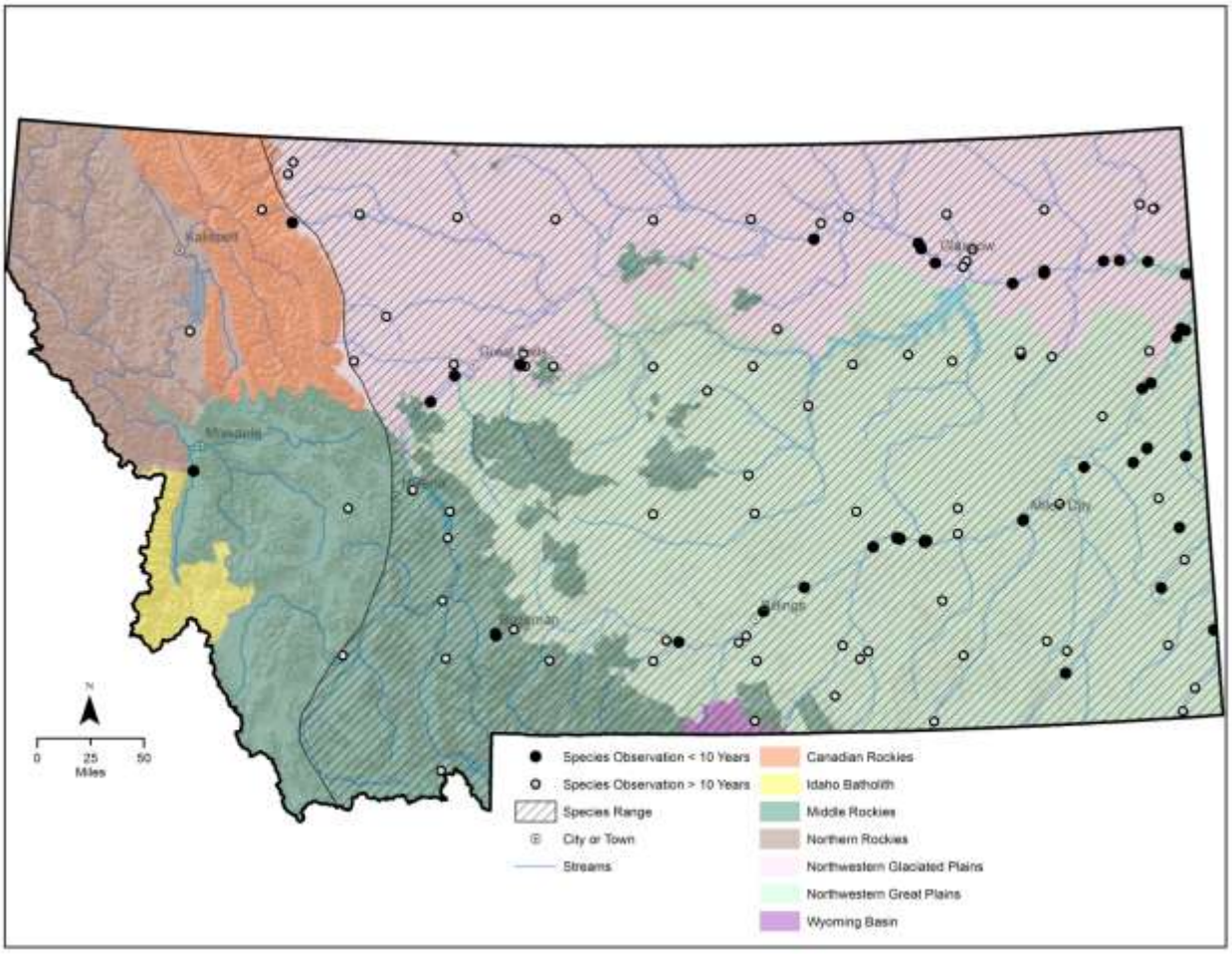

Figure 98. Montana range and observations of the black-billed cuckoo

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Yellow-billed Cuckoo (*Coccyzus americanus*) **SGCN**
State Rank: S3B

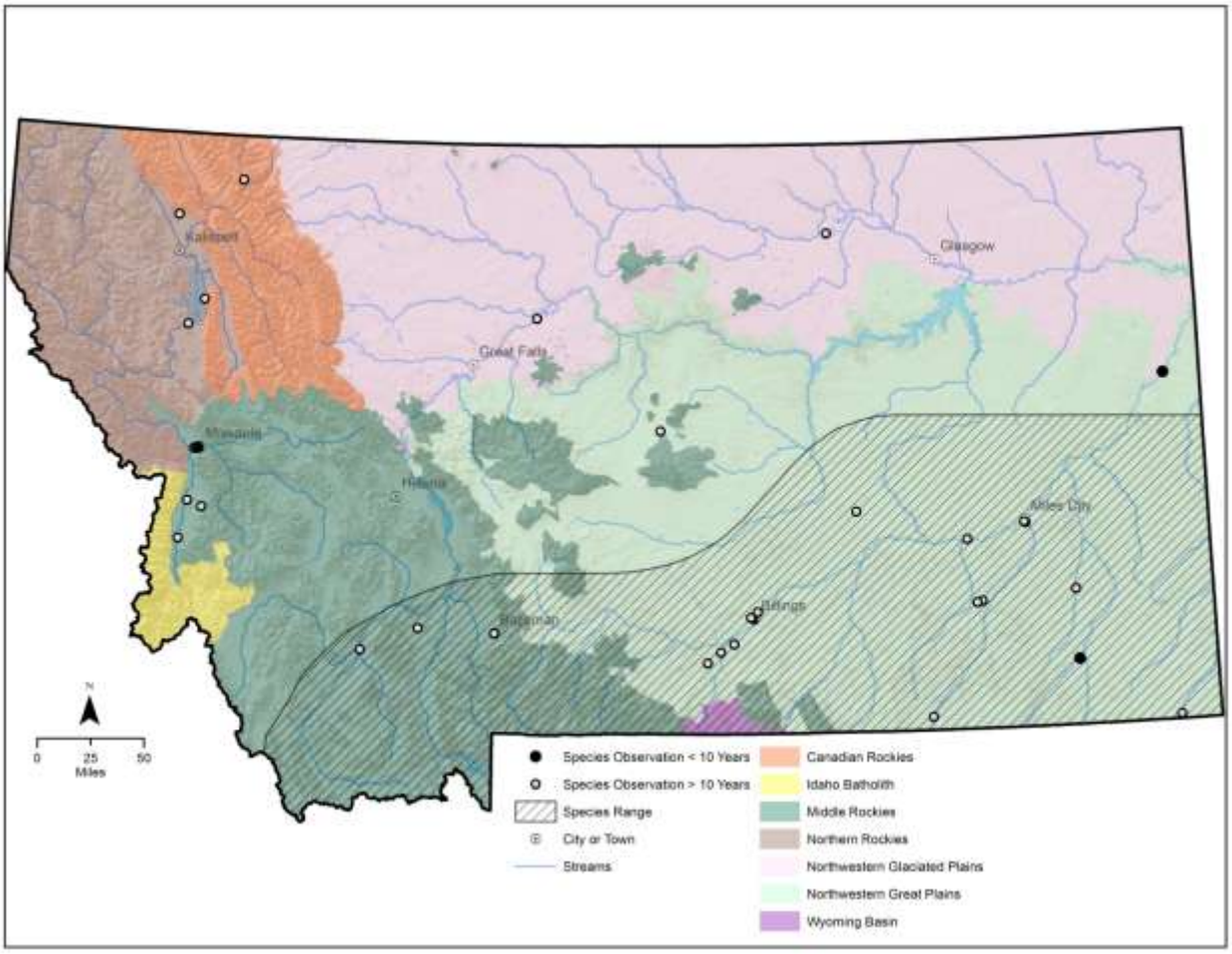

Figure 99. Montana range and observations of the yellow-billed cuckoo

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Broad-tailed Hummingbird (*Selasphorus platycercus*) **PSOC**

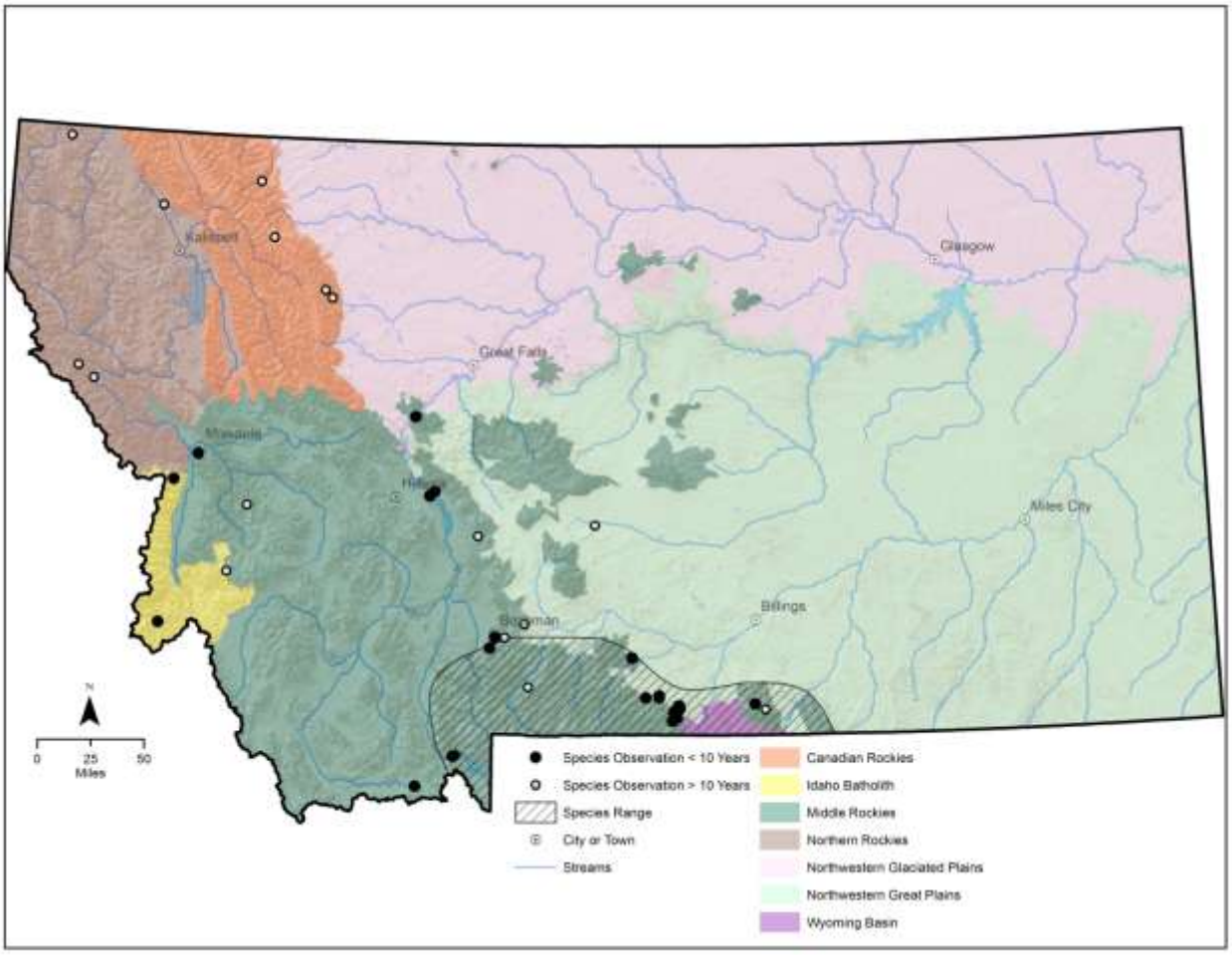

Figure 100. Montana range and observations of the broad-tailed hummingbird

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Common Poorwill (*Phalaenoptilus nuttallii*) PSOC

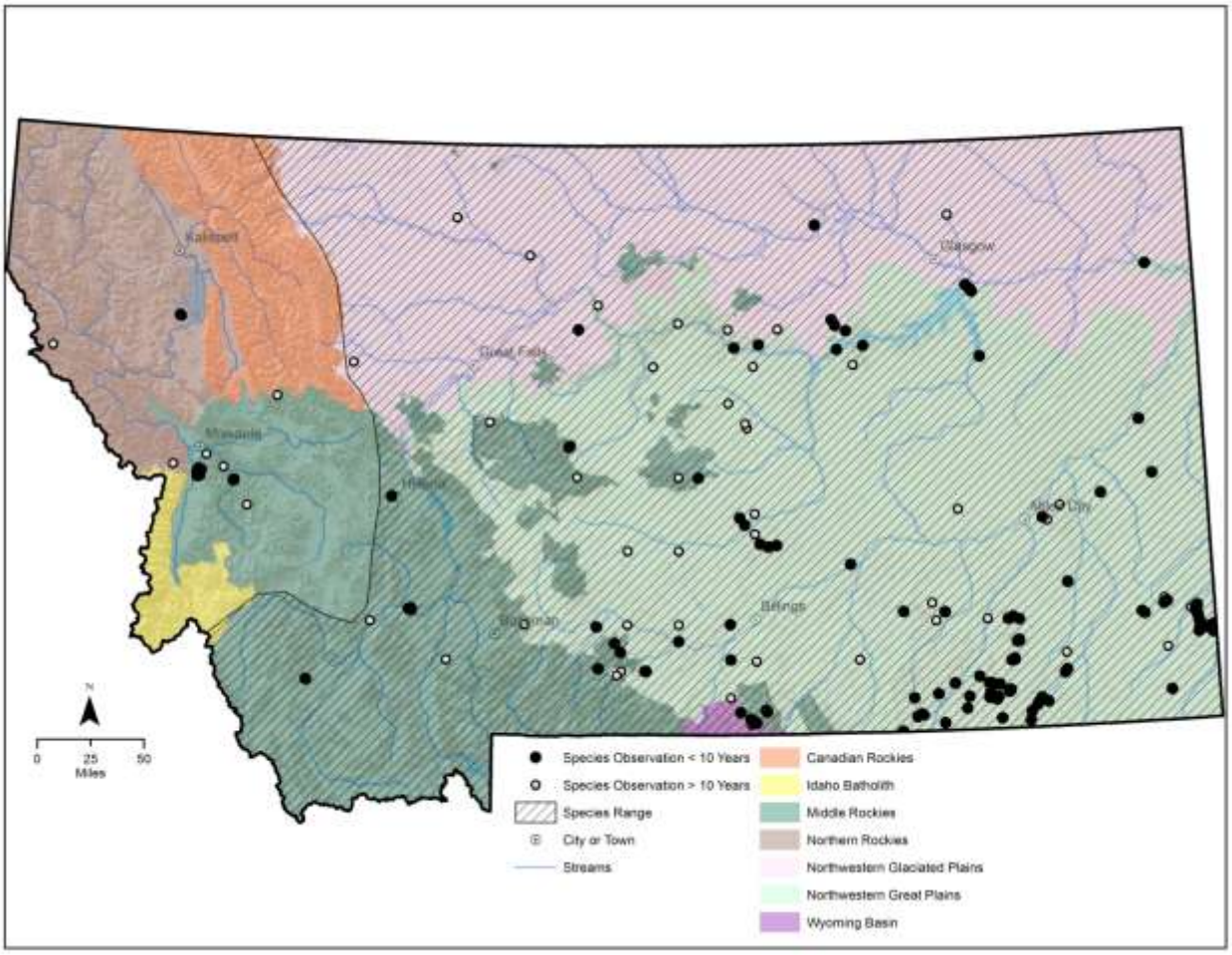

Figure 101. Montana range and observations of the common poorwill

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Boreal Owl (*Aegolius funereus*) **PSOC**

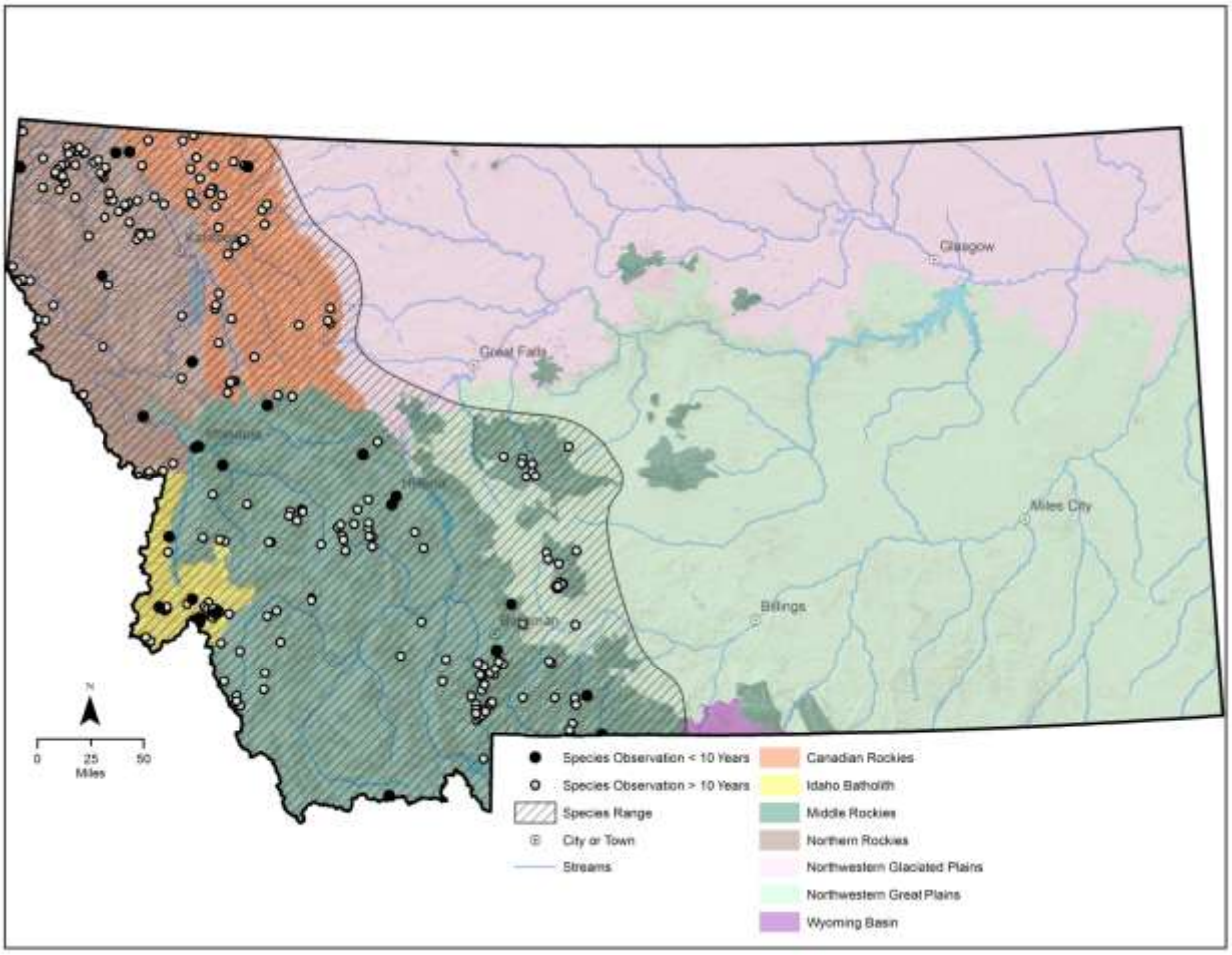

Figure 102. Montana range and observations of the boreal owl

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Eastern Screech-Owl (*Megascops asio*) **PSOC**

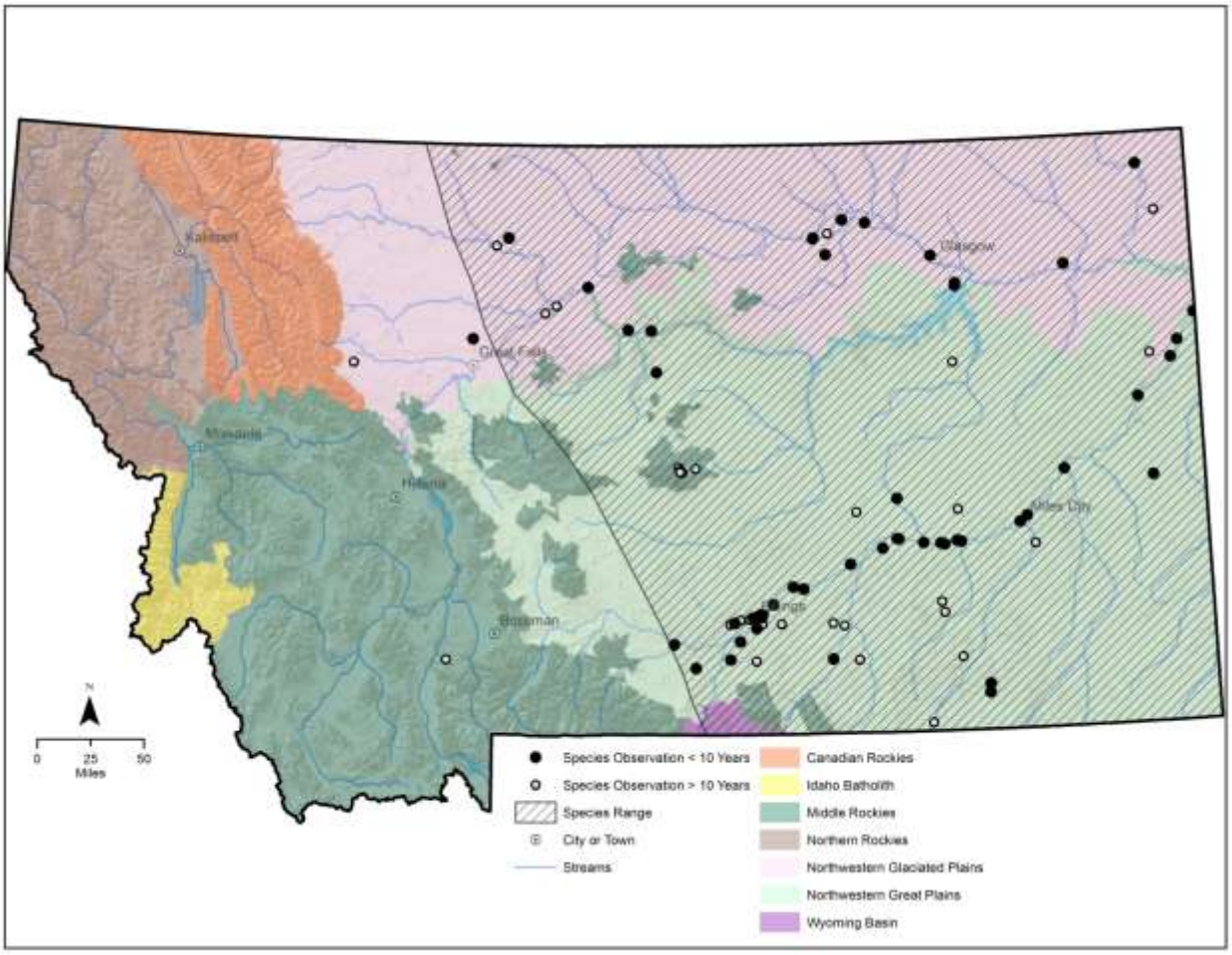

Figure 103. Montana range and observations of the eastern screech-owl

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Great Gray Owl (*Strix nebulosa*)

SGCN
State Rank: S3

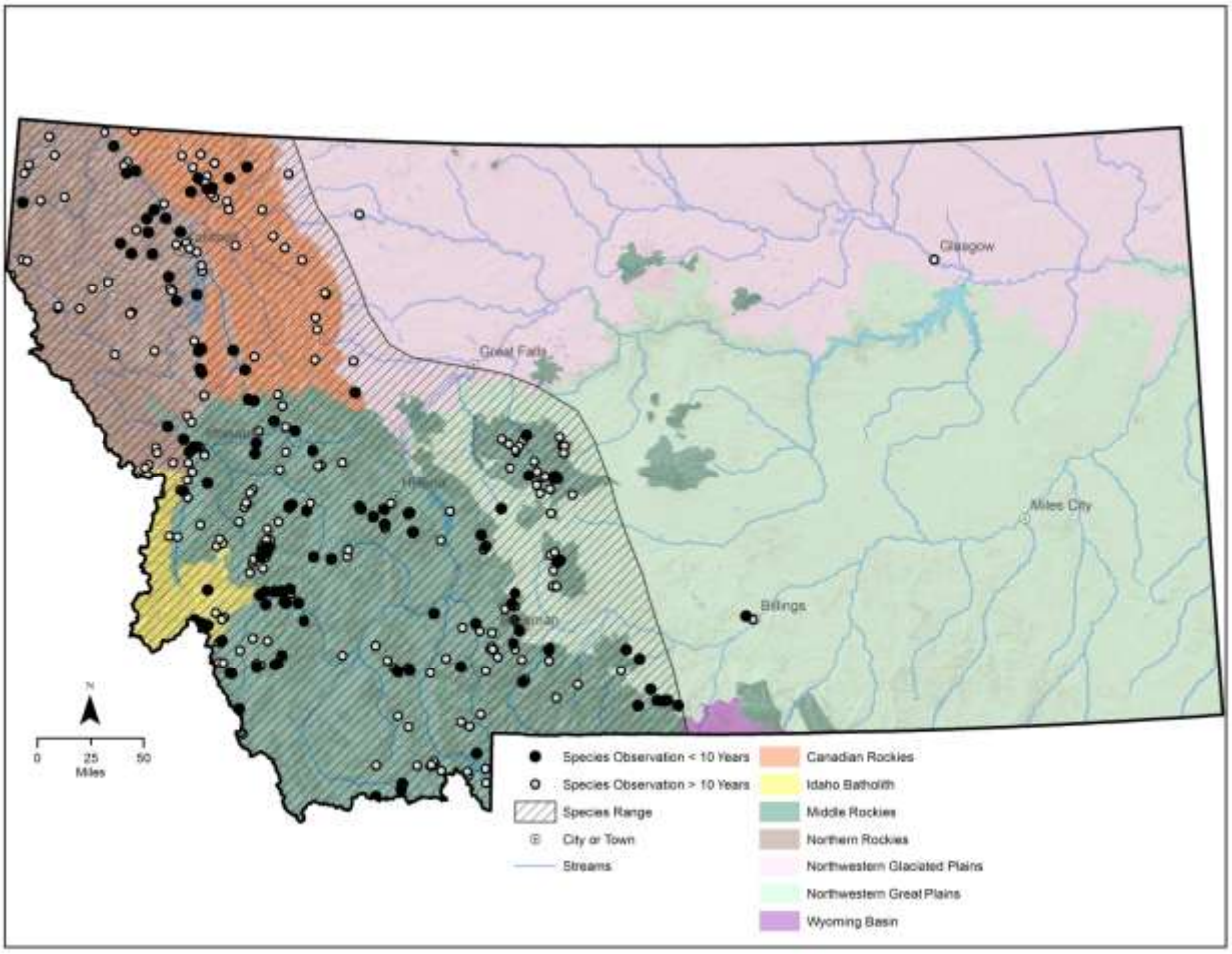

Figure 104. Montana range and observations of the great gray owl

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Northern Hawk Owl (*Surnia ulula*)

SGCN
State Rank: S3

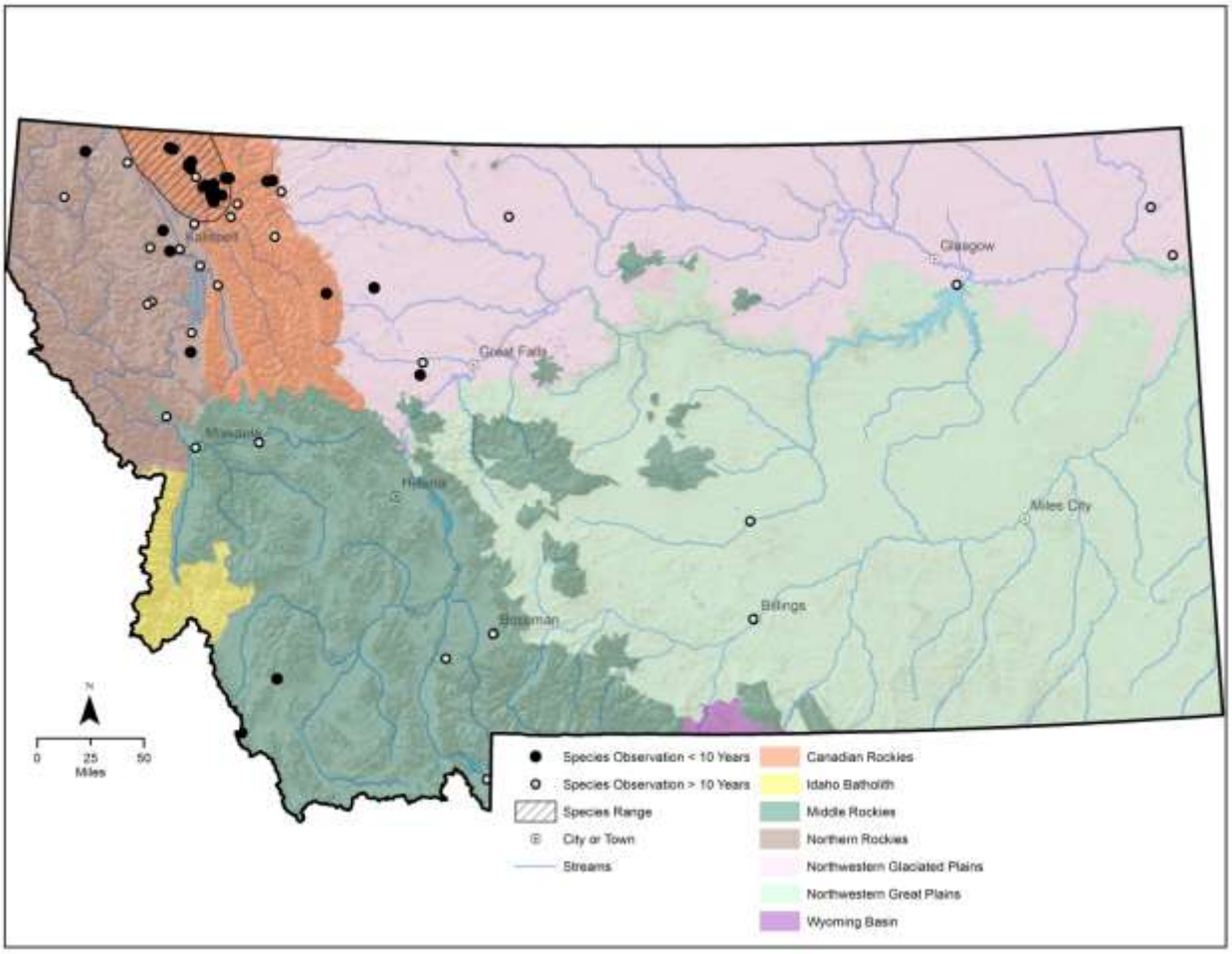

Figure 105. Montana range and observations of the northern hawk owl

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Short-eared Owl (*Asio flammeus*) **PSOC**

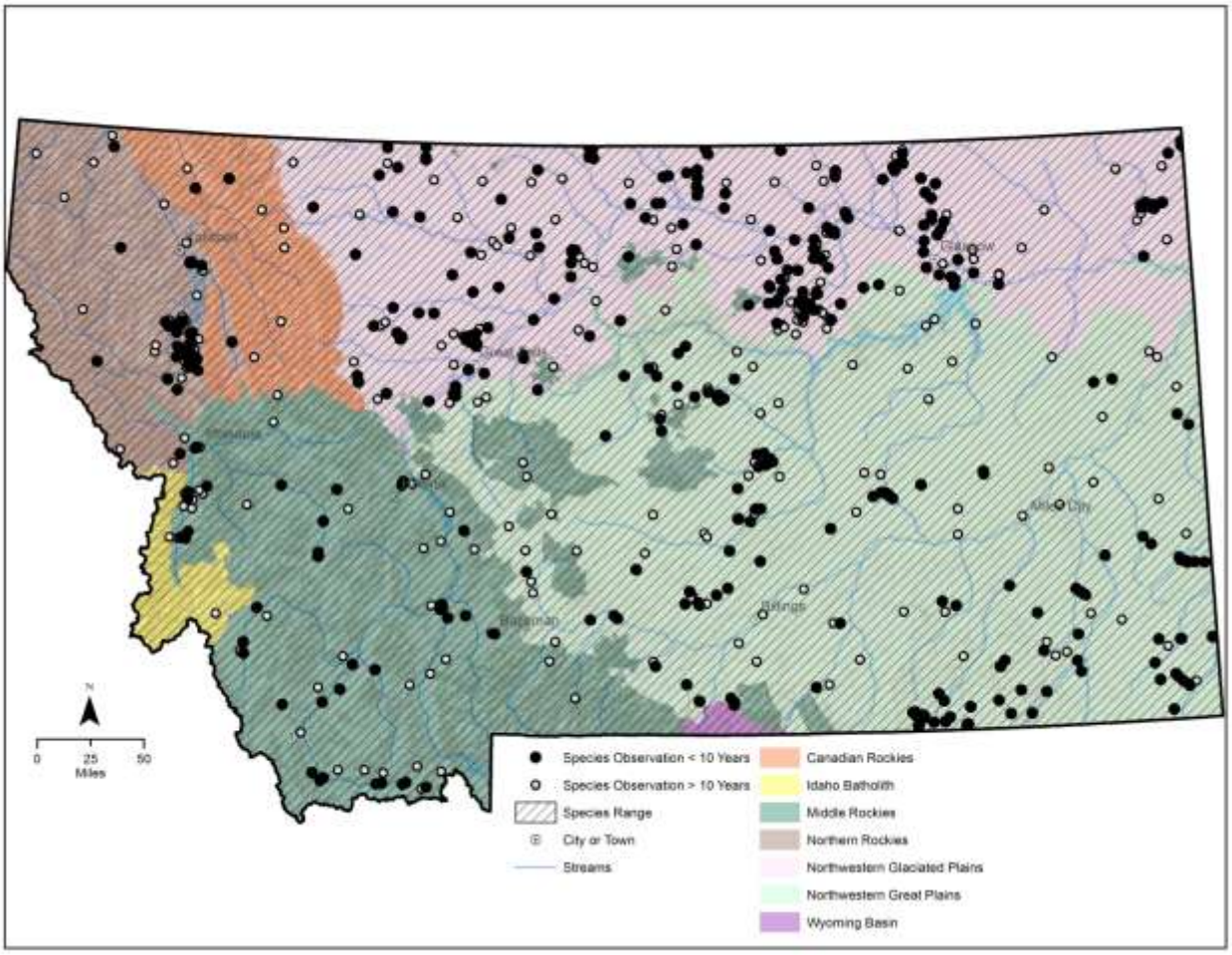

Figure 106. Montana range and observations of the short-eared owl

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Western Screech-Owl (*Megascops kennicottii*) **PSOC**

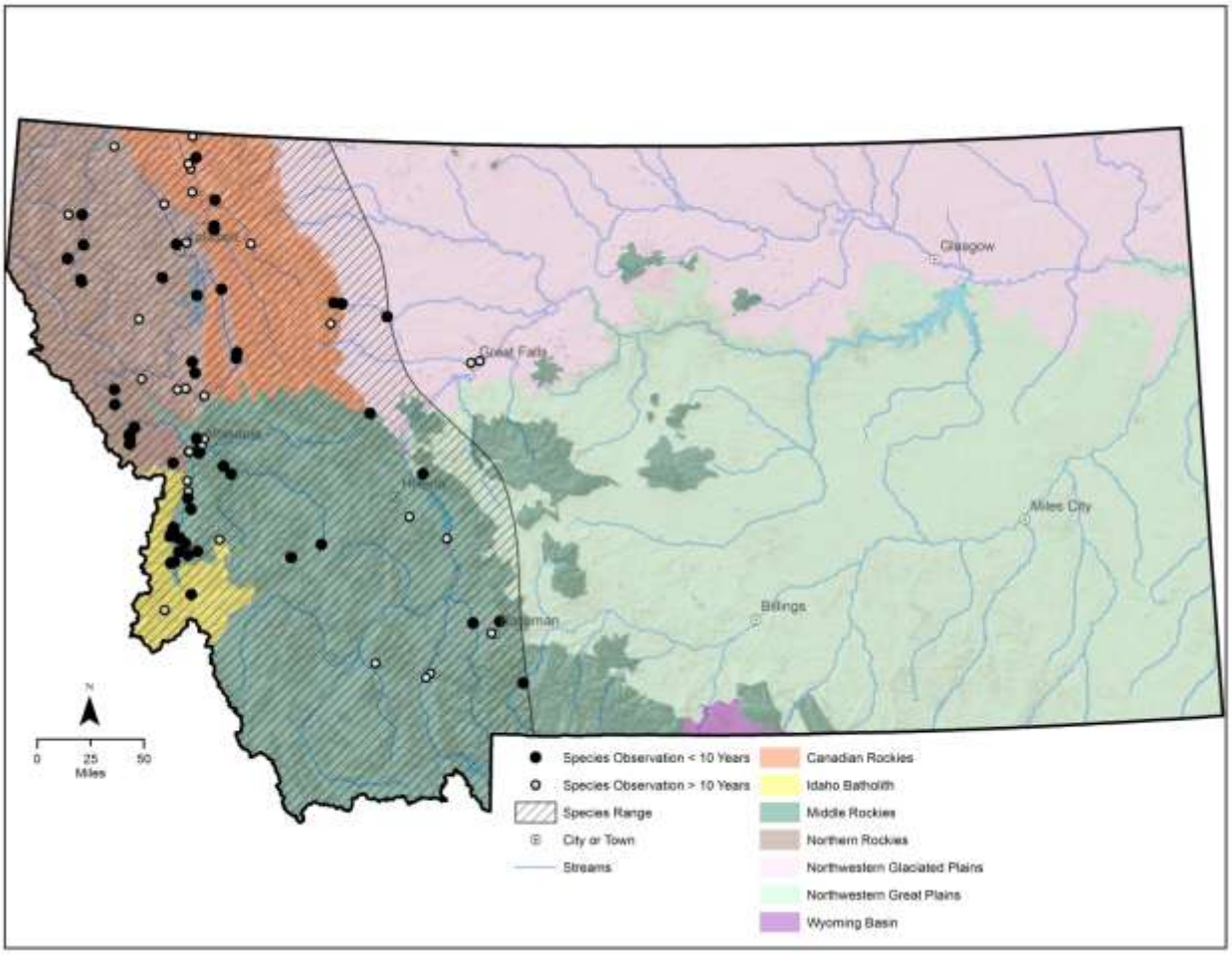

Figure 107. Montana range and observations of the western screech-owl

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Sagebrush Sparrow (*Artemisiospiza nevadensis*) **SGCN**
State Rank: S3B

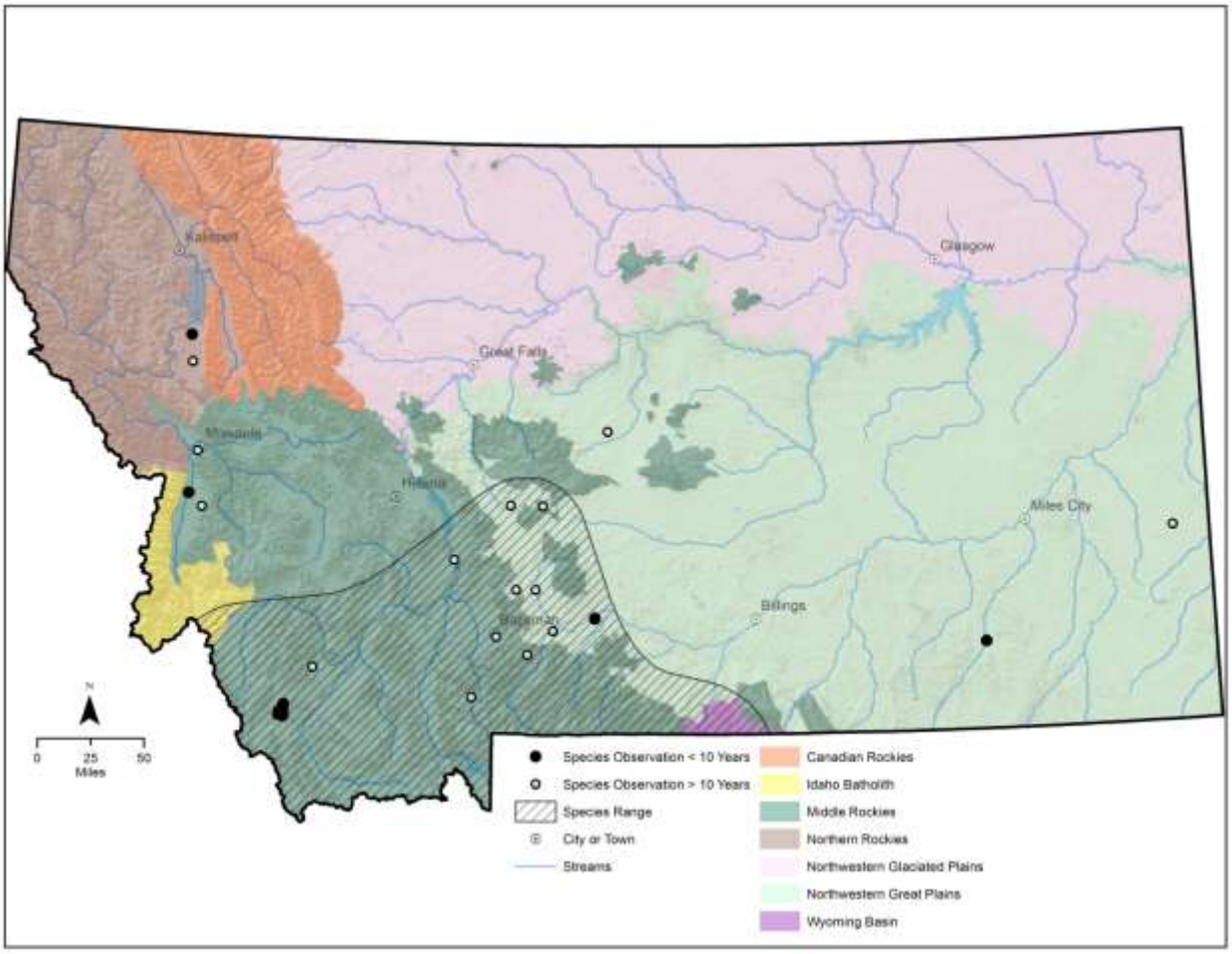

Figure 108. Montana range and observations of the sagebrush sparrow

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Barrow's Goldeneye (*Bucephala islandica*) **PSOC**

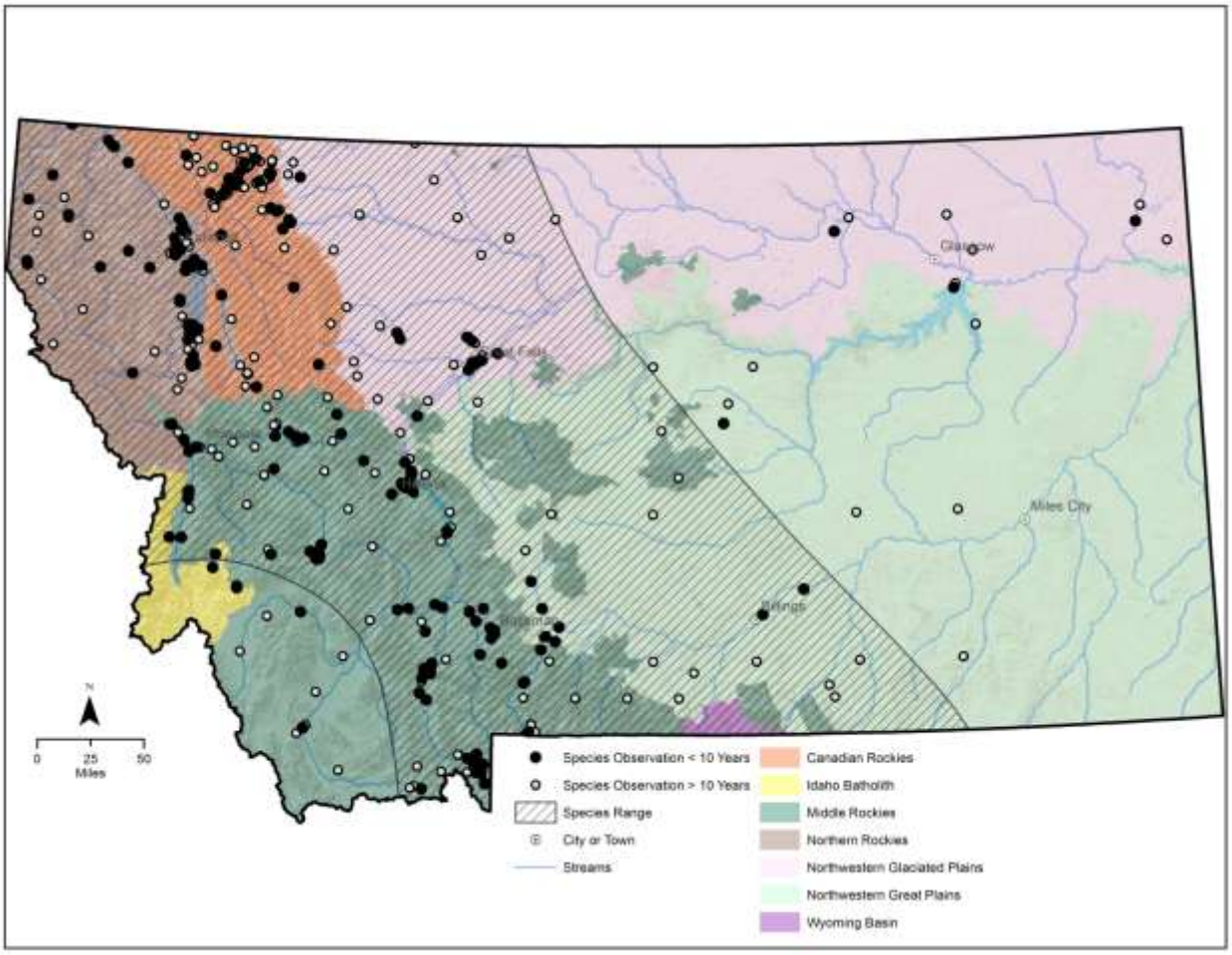

Figure 109. Montana range and observations of Barrow's goldeneye

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Hooded Merganser (*Lophodytes cucullatus*) PSOC

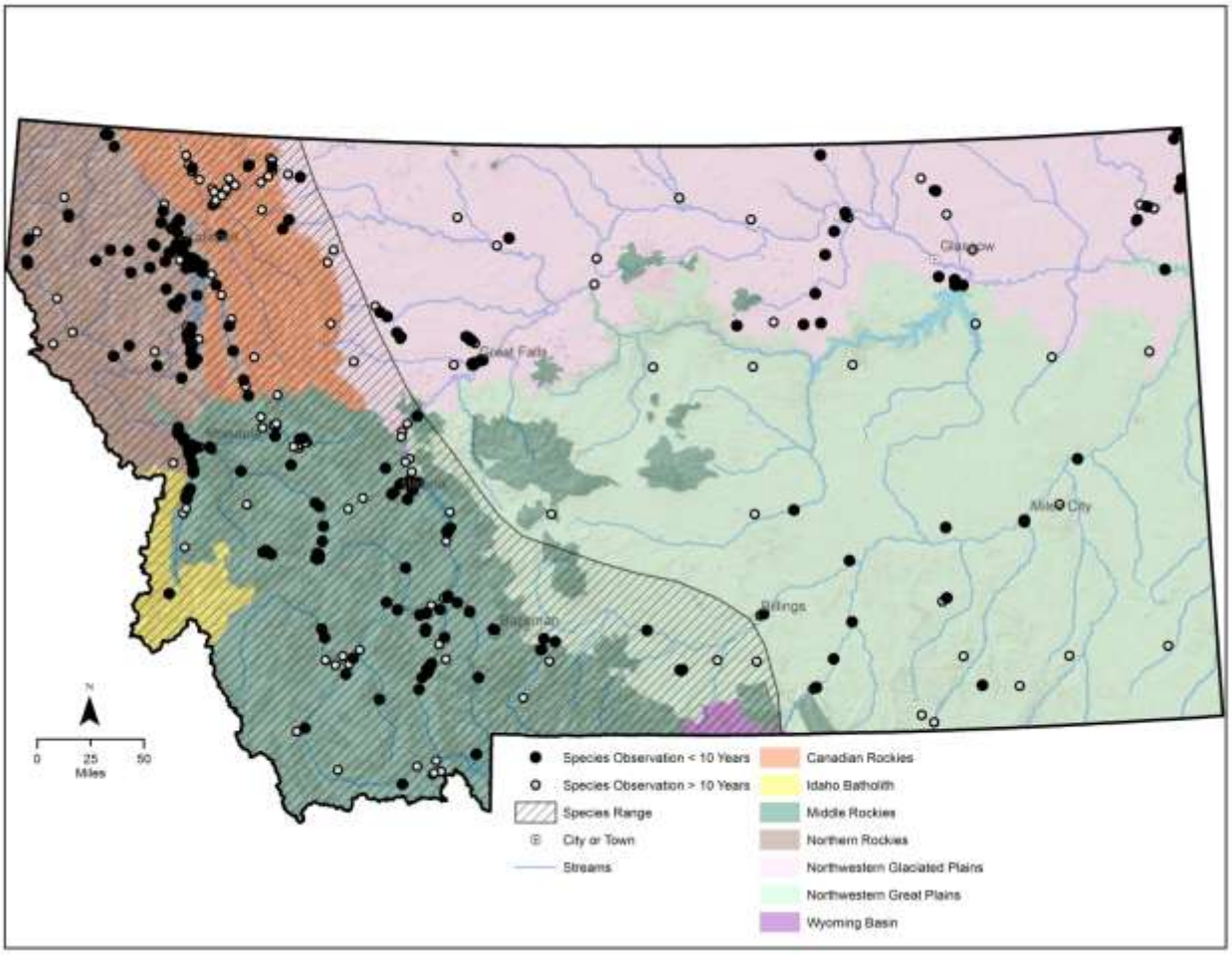

Figure 110. Montana range and observations of the hooded merganser

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Chimney Swift (*Chaetura pelagic*) **PSOC**

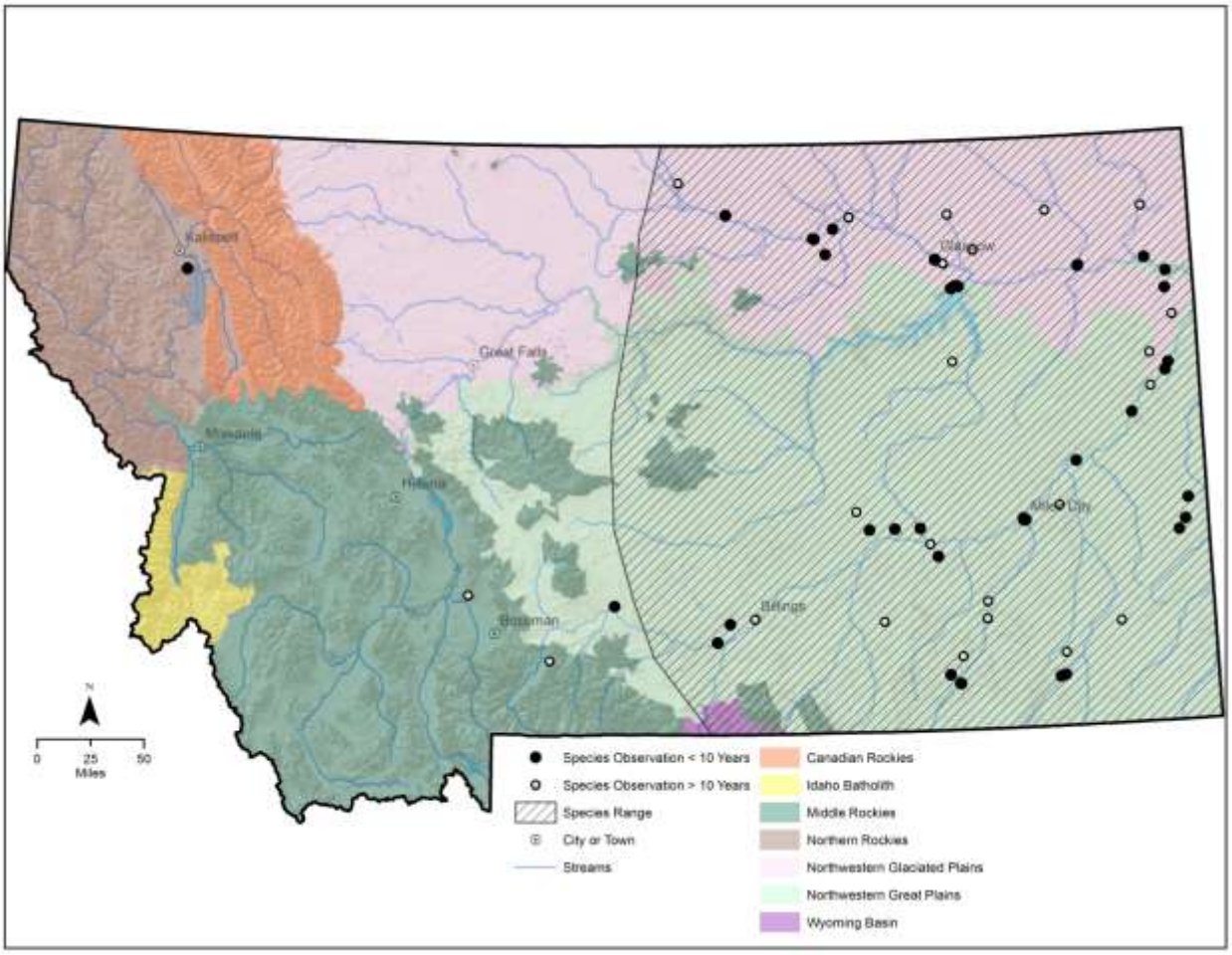

Figure 111. Montana range and observations of the chimney swift

This species lacks a baseline survey and needs to be targeted for survey and inventory.

White-tailed Ptarmigan (*Lagopus leucura*) **SGCN**
State Rank: S3

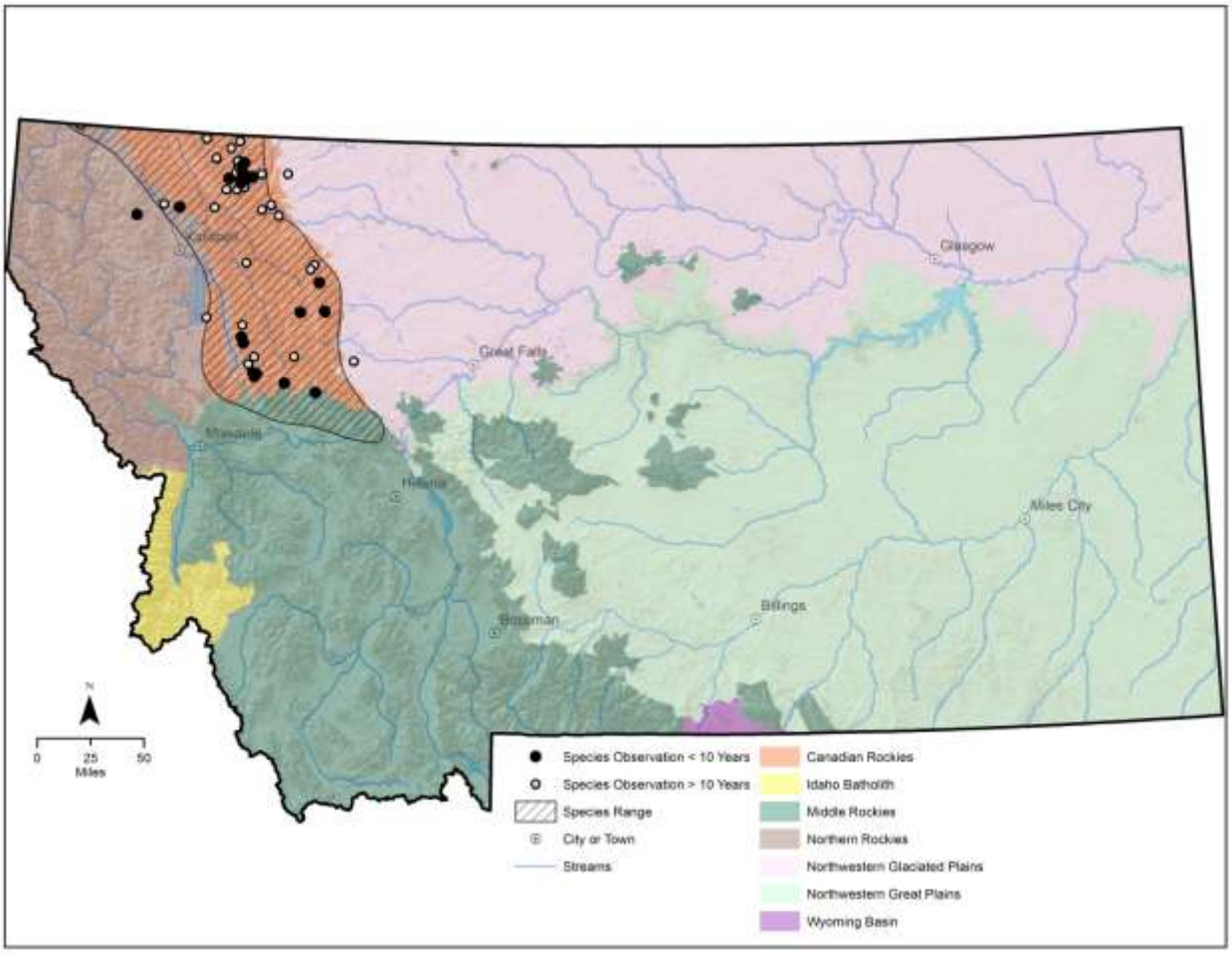

Figure 112. Montana range and observations of the white-tailed ptarmigan

This species lacks a baseline survey and needs to be targeted for survey and inventory.

The following bird SGIN are also SGCN. Information on these species can be found in the previous section, Species of Greatest Conservation Need.

Black Rosy-Finch (*Leucosticte atrata*) **SGCN**
This species has an outdated survey and needs to be targeted for survey and inventory. For more information, see Black Rosy-Finch under Species of Greatest Conservation Need in the previous section.

Gray-crowned Rosy-Finch (*Leucosticte tephrocotis*) **SGCN**
This species lacks a baseline survey and needs to be targeted for survey and inventory. For more information, see Gray-crowned Rosy-Finch under Species of Greatest Conservation Need in the previous section.

Least Tern (*Sternula antillarum*) **SGCN**
This species has an outdated survey and needs to be targeted for survey and inventory. For more information, see Least Tern under Species of Greatest Conservation Need in the previous section.

Harlequin Duck (*Histrionicus histrionicus*) **SGCN**
This species has an outdated survey and needs to be targeted for survey and inventory. For more information, see Harlequin Duck under Species of Greatest Conservation Need in the previous section.

Black Swift (*Cypseloides niger*) **SGCN**
This species lacks a baseline survey and needs to be targeted for survey and inventory. For more information, see Black Swift under Species of Greatest Conservation Need in the previous section.

FISH

Deepwater Sculpin (*Myoxocephalus thompsonii*)

SGCN
State Rank: S3

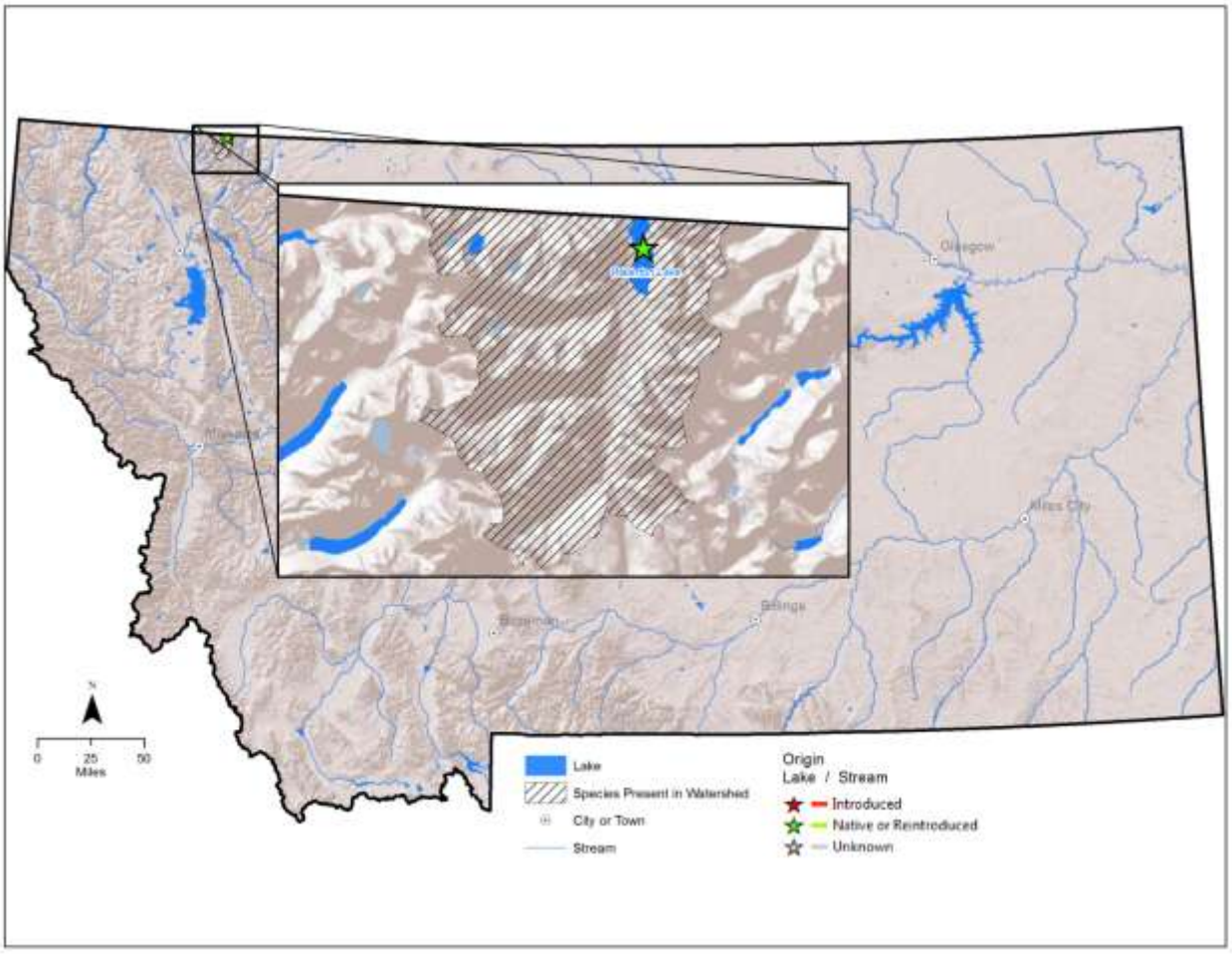

Figure 113. Montana range and observations of the deepwater sculpin

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Pygmy Whitefish (*Prosopium coulteri*) **SGCN**
State Rank: S3

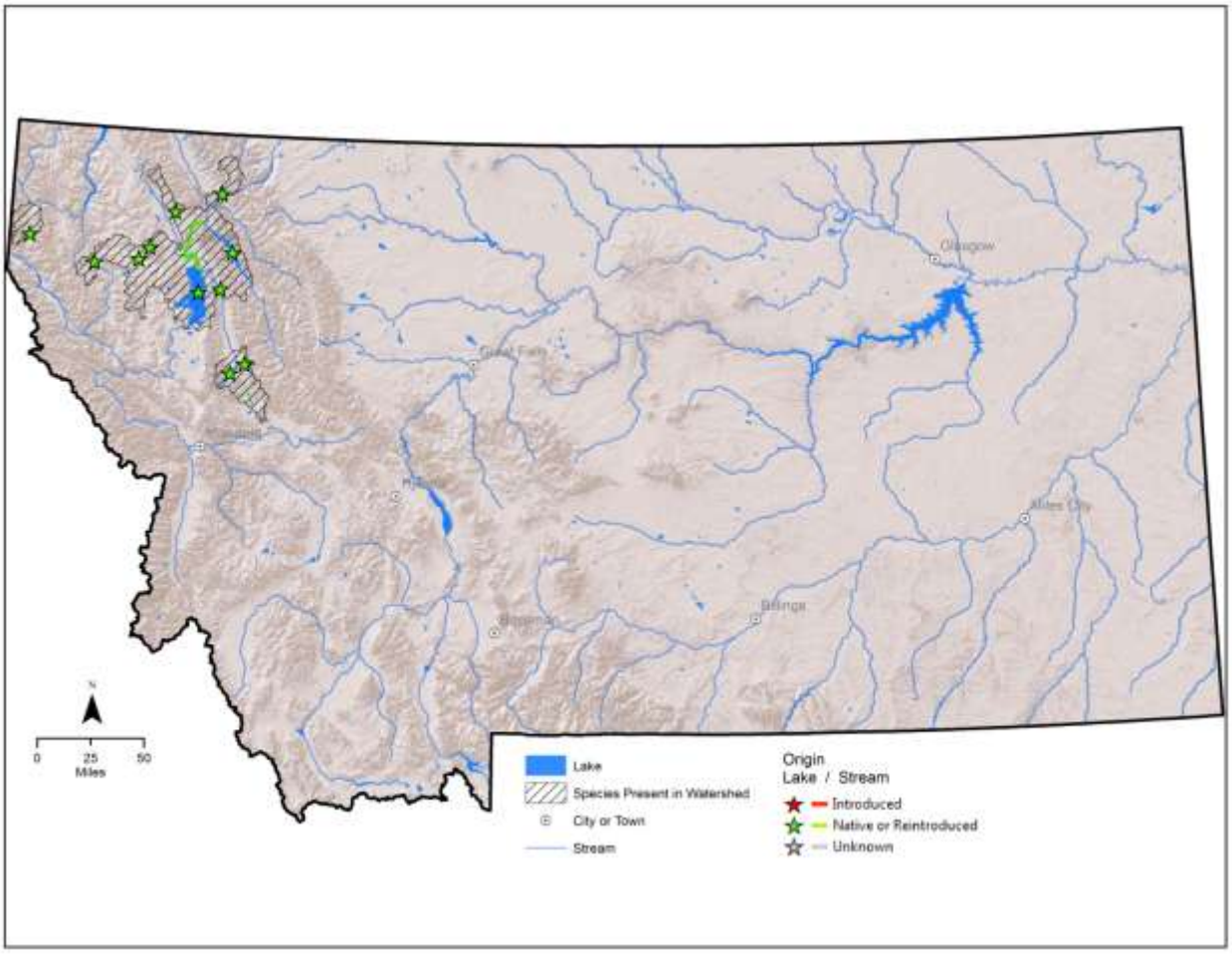

Figure 114. Montana range and observations of the pygmy whitefish

This species lacks a baseline survey and needs to be targeted for survey and inventory.

The following fish SGIN is also an SGCN. Information on this species can be found in the previous section, Species of Greatest Conservation Need.

Trout-perch (*Percopsis omiscomaycus*) **SGCN**
This species lacks a baseline survey and needs to be targeted for survey and inventory. For more information, see Trout-perch under Species of Greatest Conservation Need in the previous section.

MAMMALS

Spotted Bat (*Euderma maculatum*)

SGCN
State Rank: S3

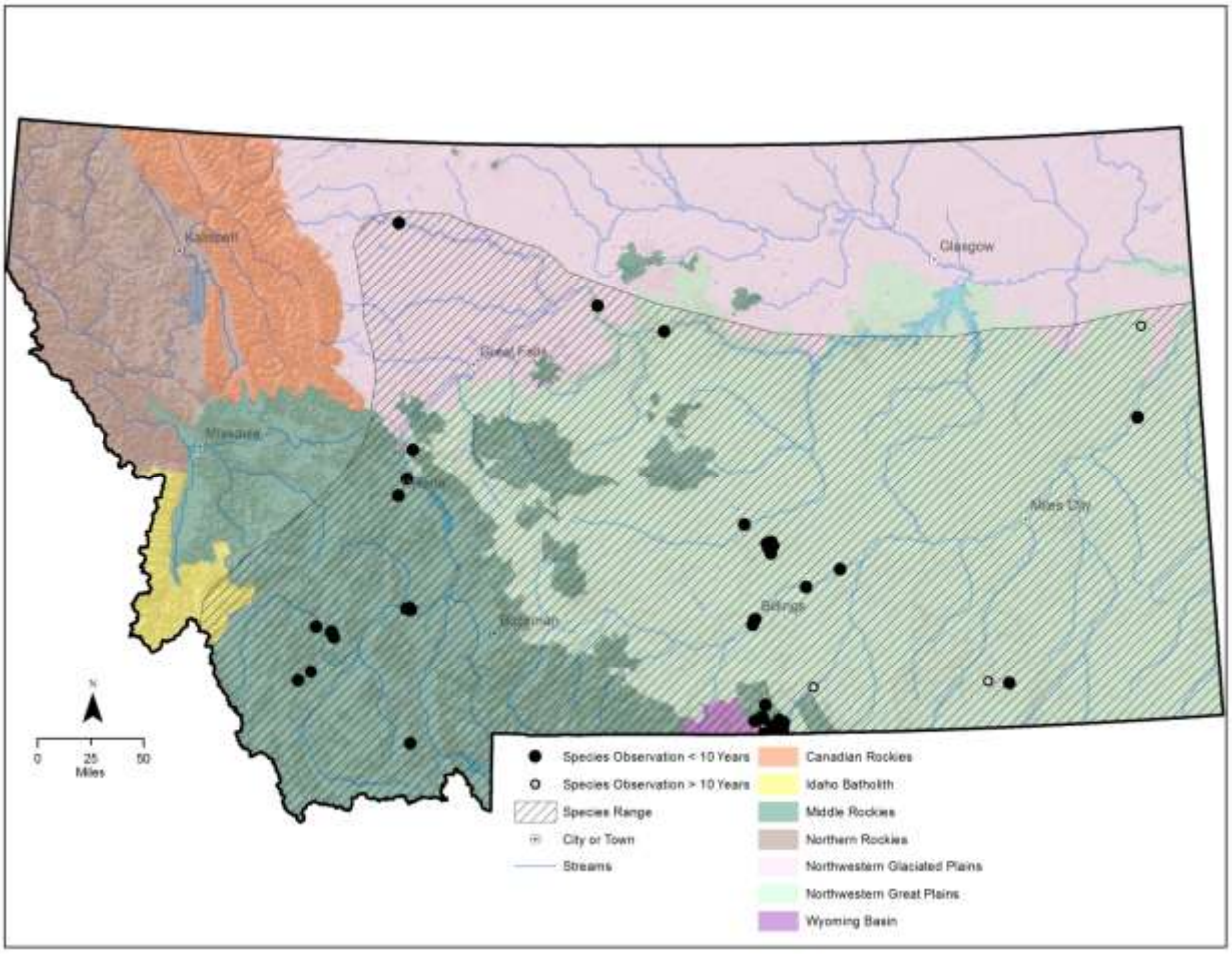

Figure 115. Montana range and observations of the spotted bat

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Yuma Myotis (*Myotis yumanensis*) **PSOC**

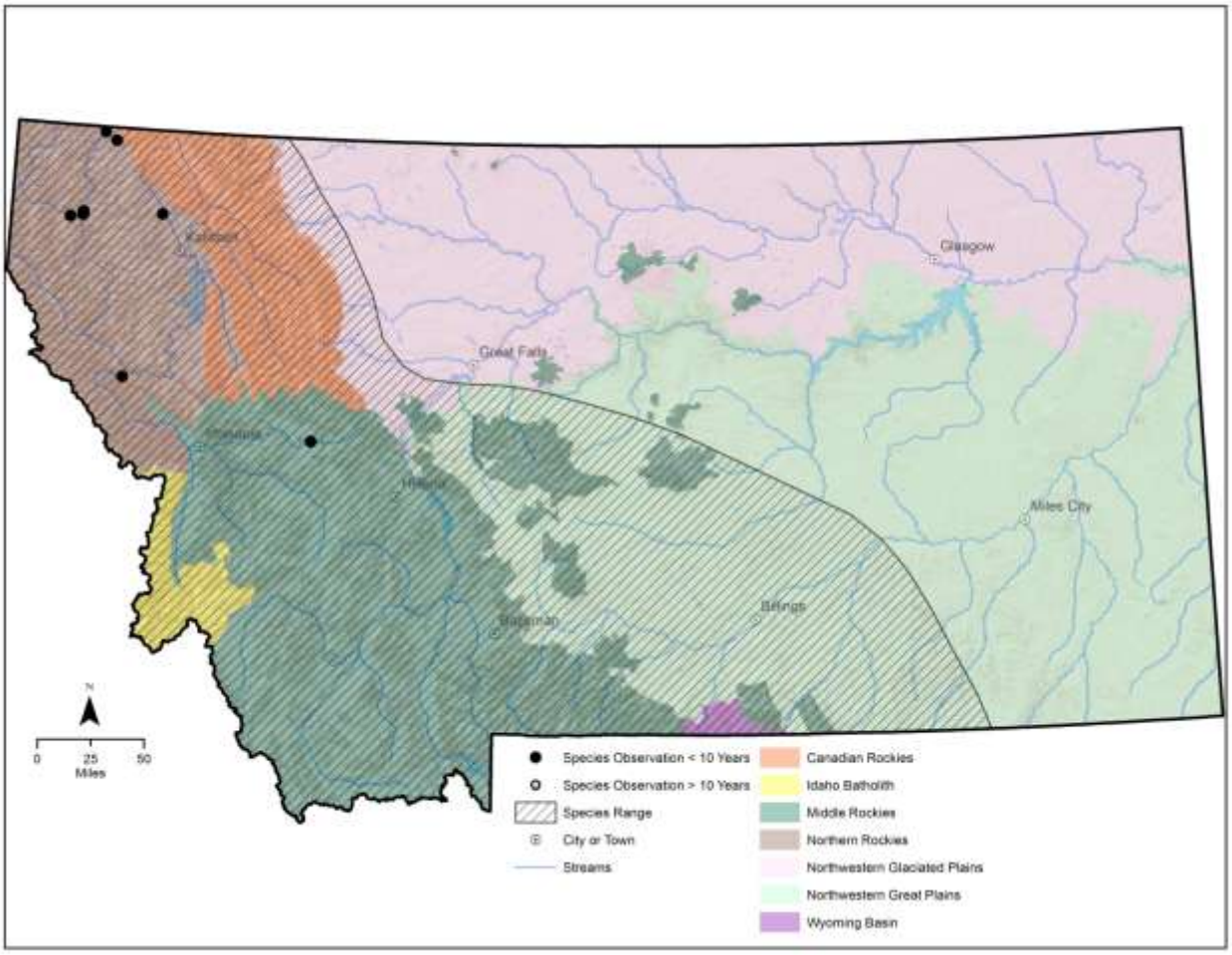

Figure 116. Montana range and observations of the Yuma myotis

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Meadow Jumping Mouse (*Zapus hudsonius*) PSOC

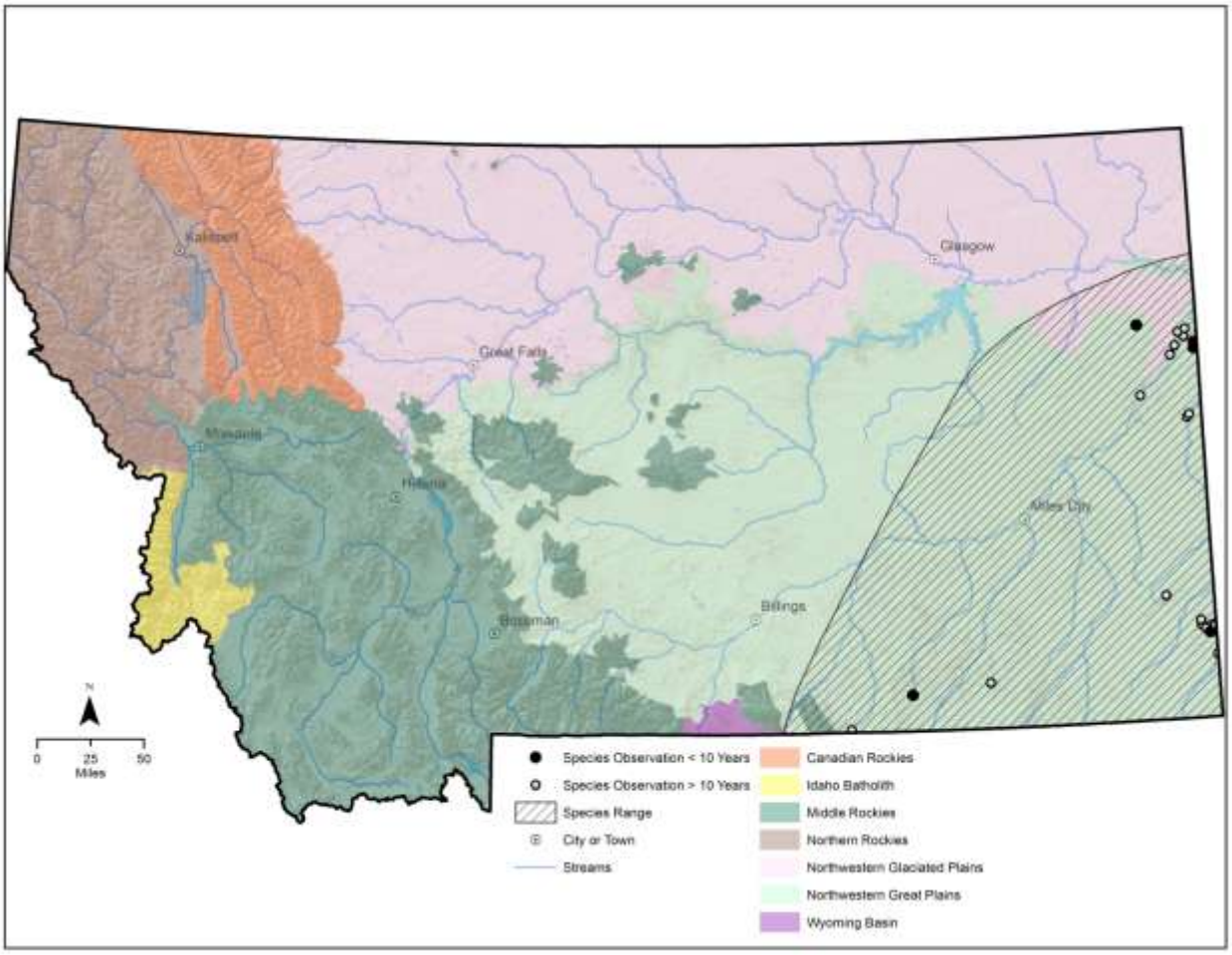

Figure 117. Montana range and observations of the meadow jumping mouse

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Idaho Pocket Gopher (*Thomomys idahoensis*) PSOC

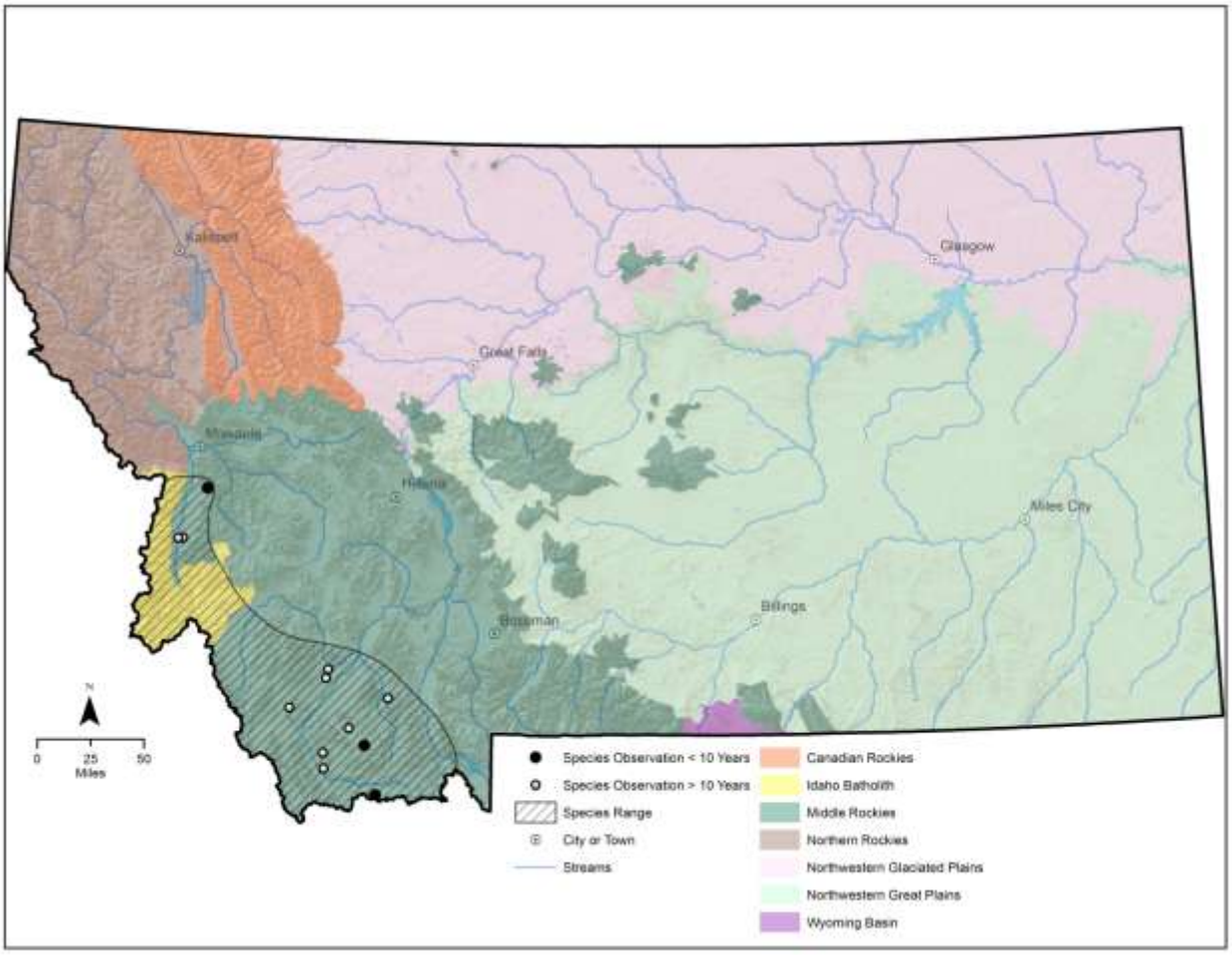

Figure 118. Montana range and observations of the Idaho pocket gopher

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Great Basin Pocket Mouse (*Perognathus parvus*)

SGCN
State Rank: S3

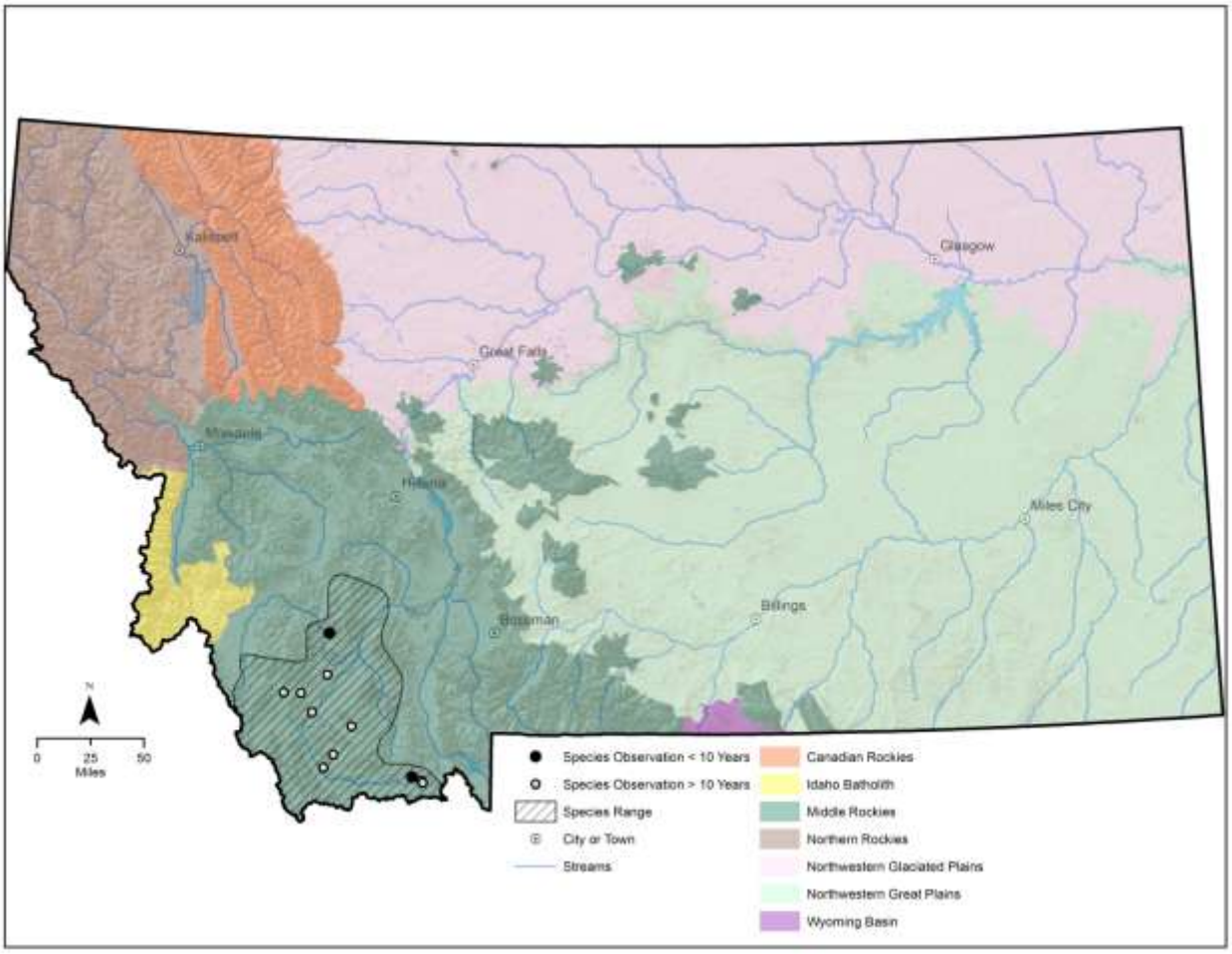

Figure 119. Montana range and observations of the Great Basin pocket mouse

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Hispid Pocket Mouse (*Chaetodipus hispidus*) PSOC

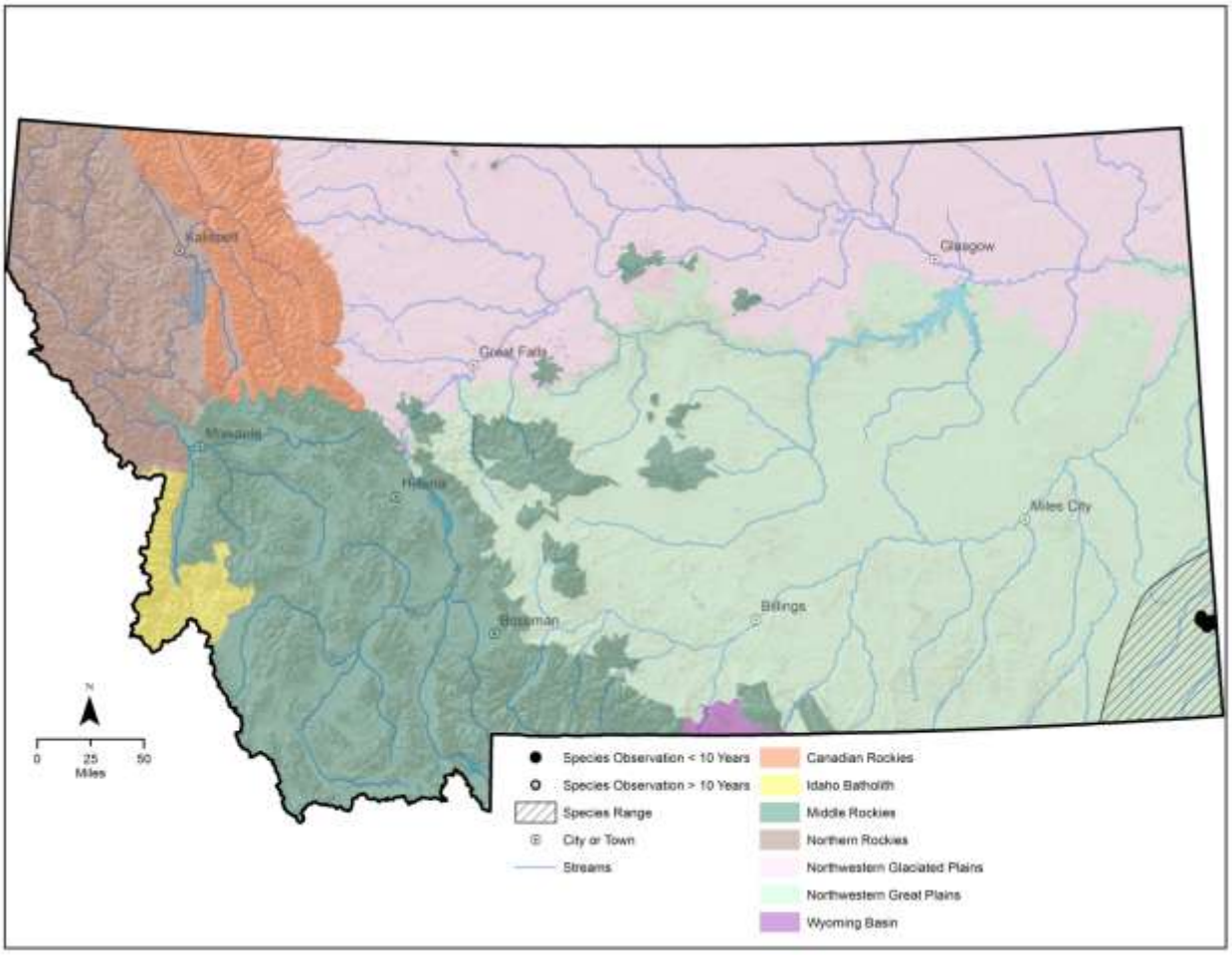

Figure 120. Montana range and observations of the hispid pocket mouse

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Porcupine (*Erethizon dorsatum*) **PSOC**

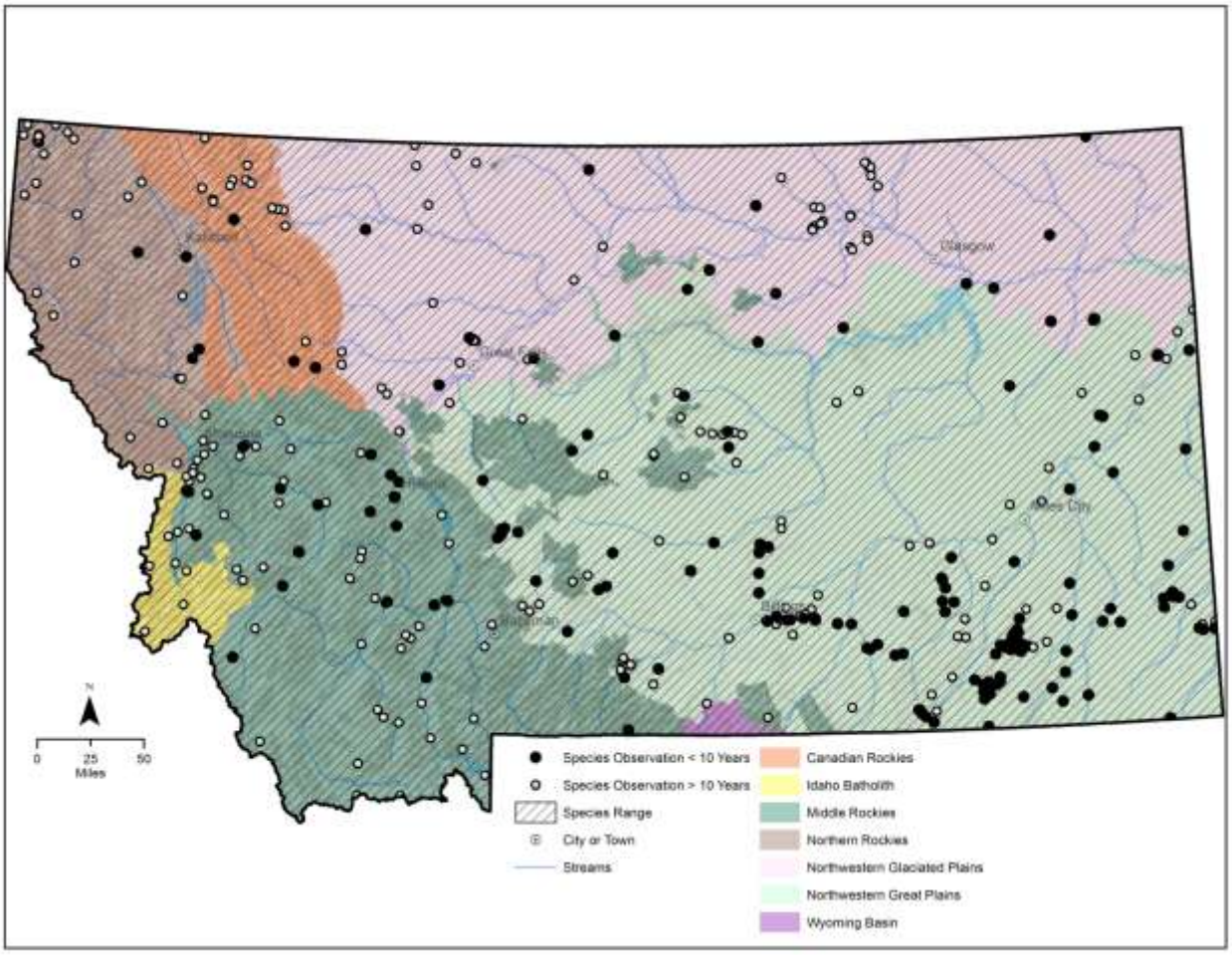

Figure 121. Montana range and observations of the porcupine

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Black-tailed Jack Rabbit (*Lepus californicus*) **PSOC**

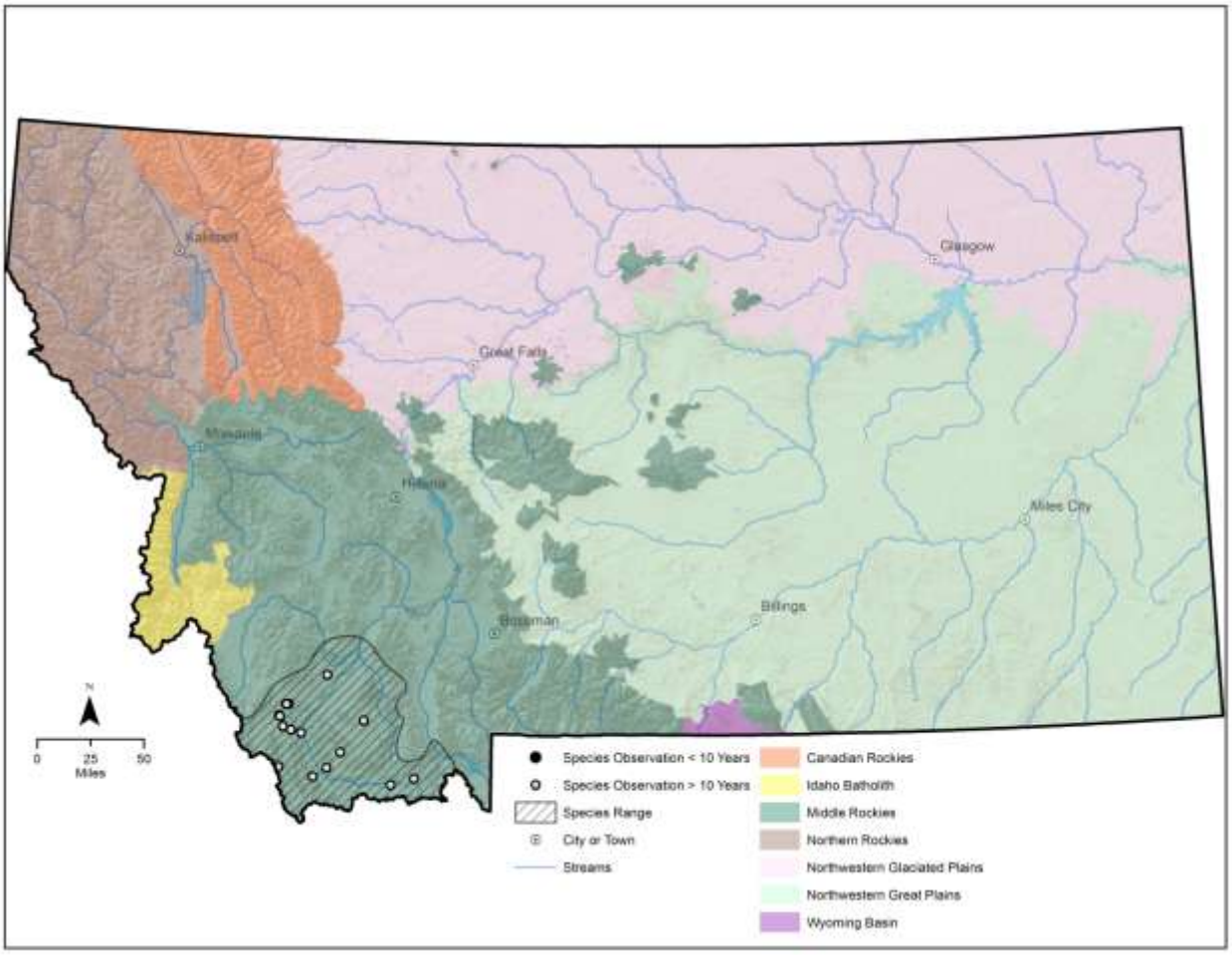

Figure 122. Montana range and observations of the black-tailed jack rabbit

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Western Spotted Skunk (*Spilogale gracilis*) **PSOC**

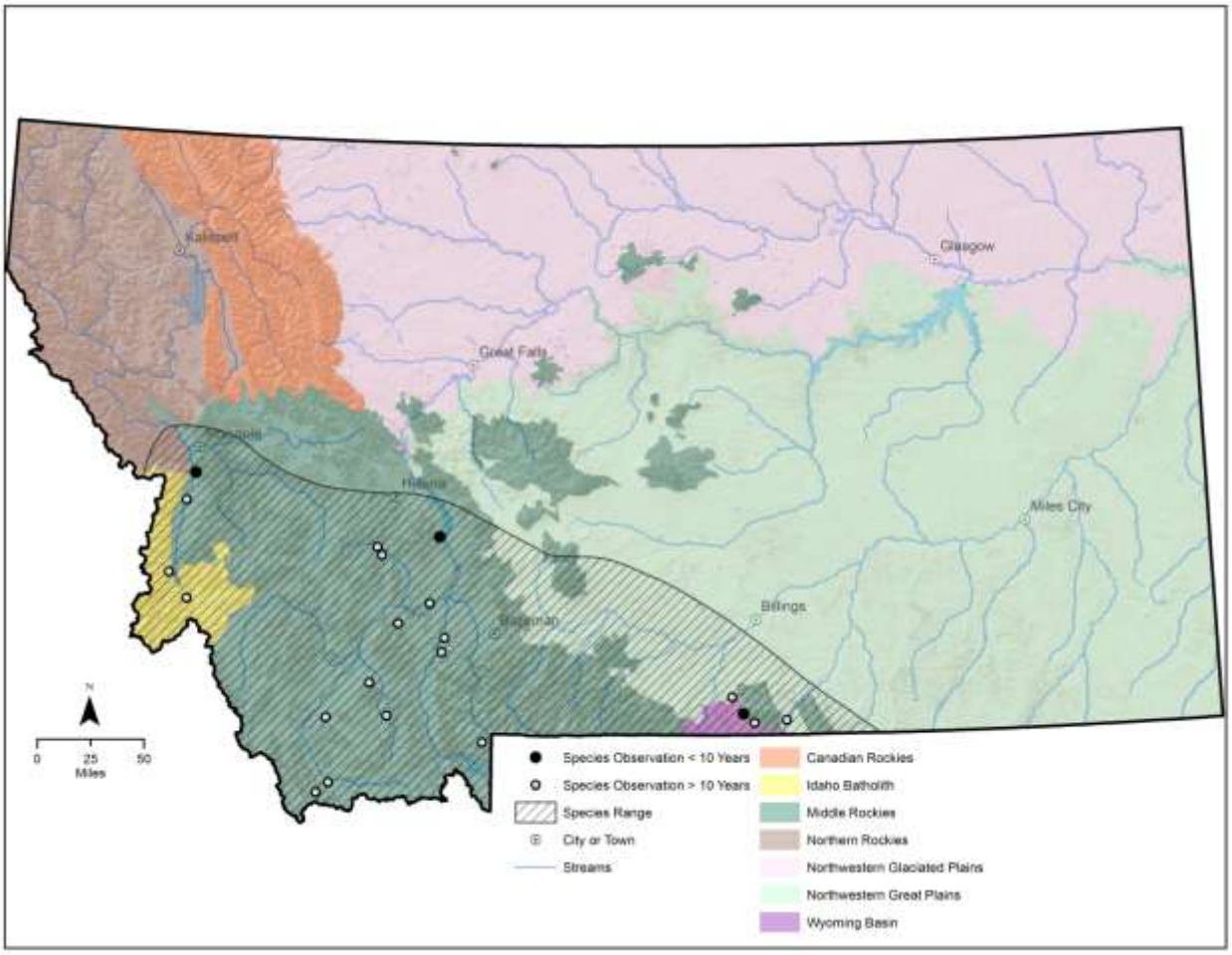

Figure 123. Montana range and observations of the western spotted skunk

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Hoary Marmot (*Marmota caligata*) PSOC

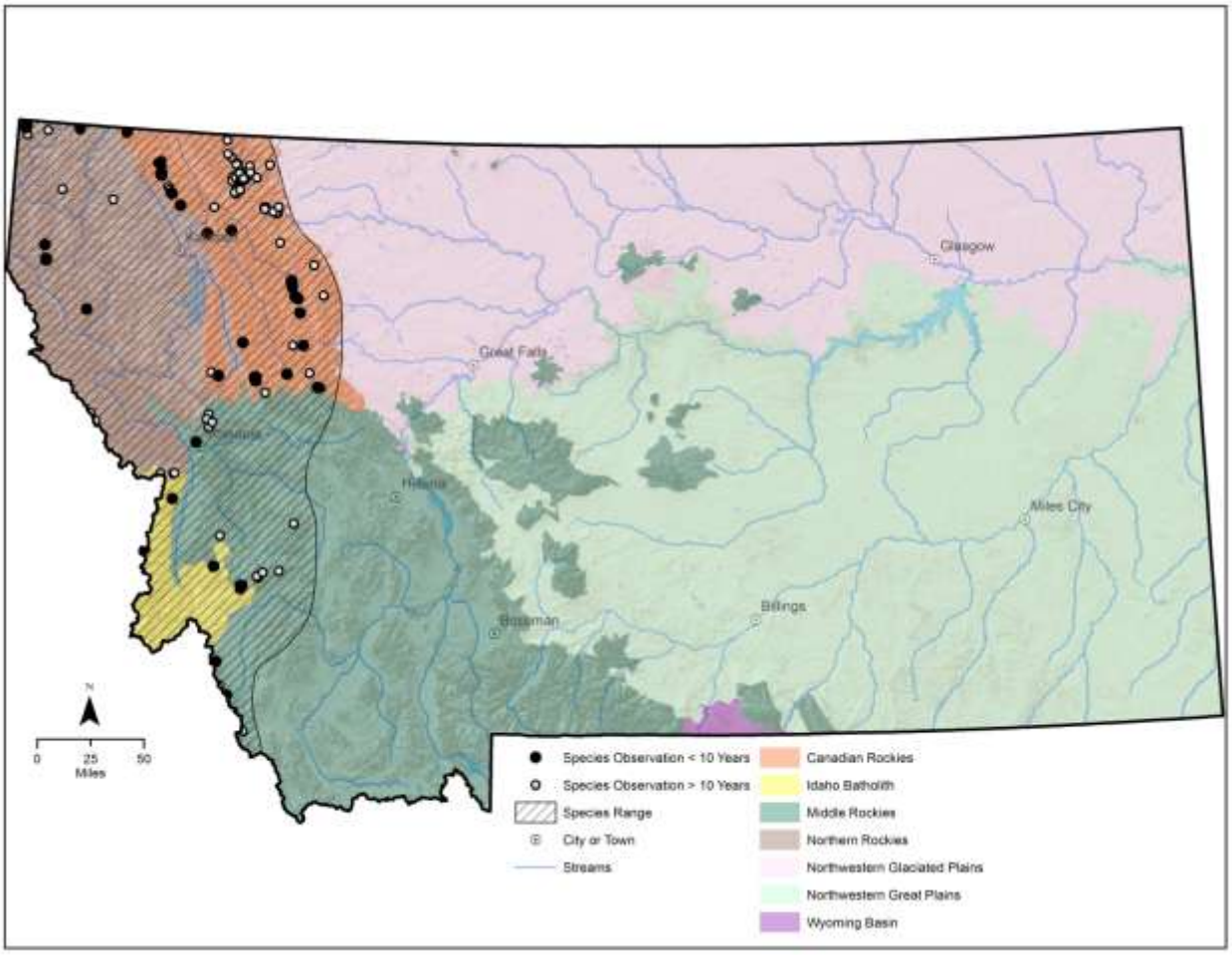

Figure 124. Montana range and observations of the hoary marmot

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Uinta Chipmunk (*Tamias umbrinus*) **PSOC**

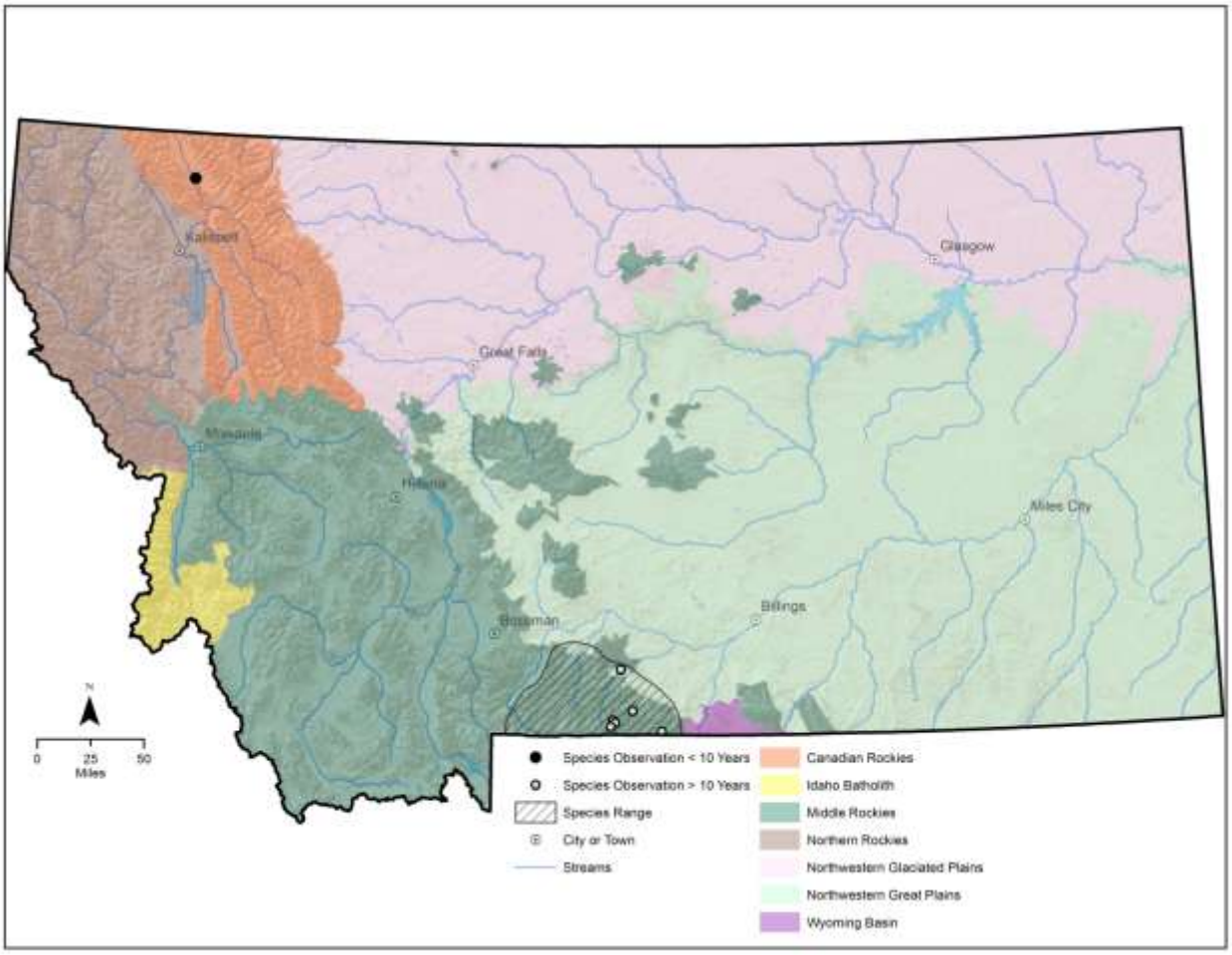

Figure 125. Montana range and observations of the Uinta chipmunk

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Uinta Ground Squirrel (*Urocitellus armatus*) **PSOC**

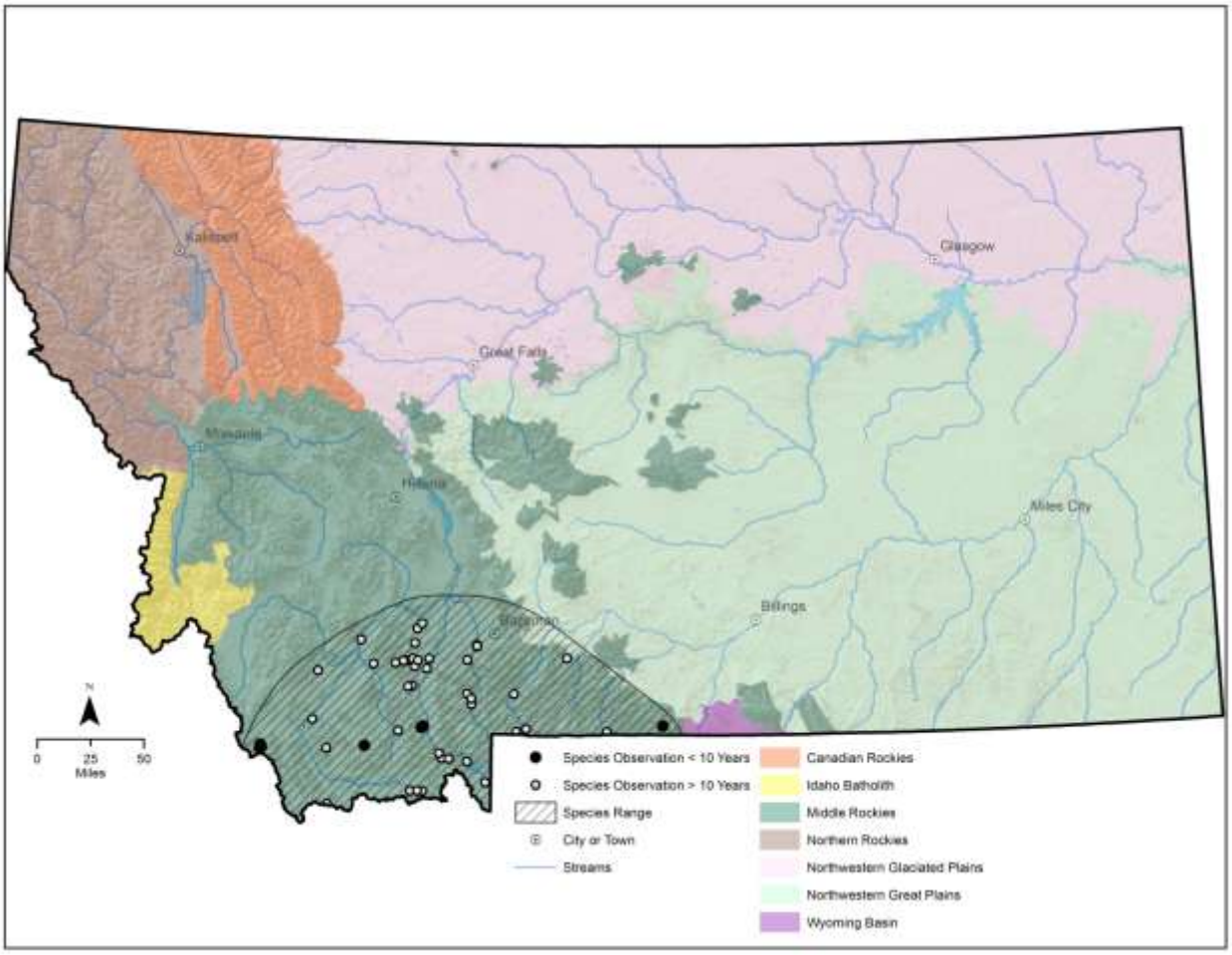

Figure 126. Montana range and observations of the Uinta ground squirrel

This species lacks a baseline survey and needs to be targeted for survey and inventory.

The following mammal SGIN is also an SGCN. Information on this species can be found in the previous section, Species of Greatest Conservation Need.

Northern Bog Lemming (*Synaptomys borealis*) **SGCN**

This species has an outdated survey and needs to be targeted for survey and inventory. For more information, see Northern Bog Lemming under Species of Greatest Conservation Need in the previous section.

REPTILES

Northern Alligator Lizard (*Elgaria coerulea*)

SGCN
State Rank: S3

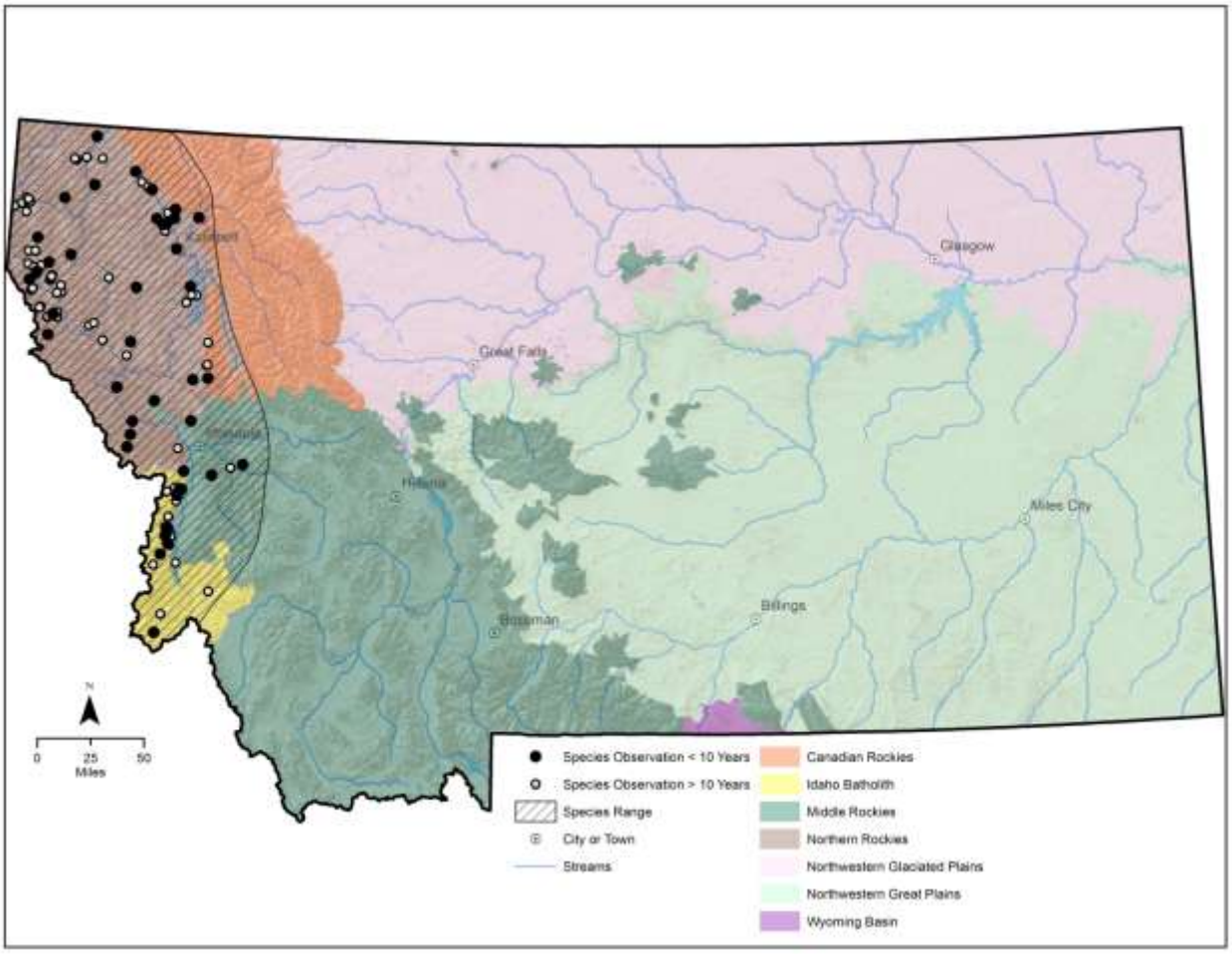

Figure 127. Montana range and observations of the northern alligator lizard

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Greater Short-horned Lizard (*Phrynosoma hernandesi*) **SGCN**
State Rank: S3

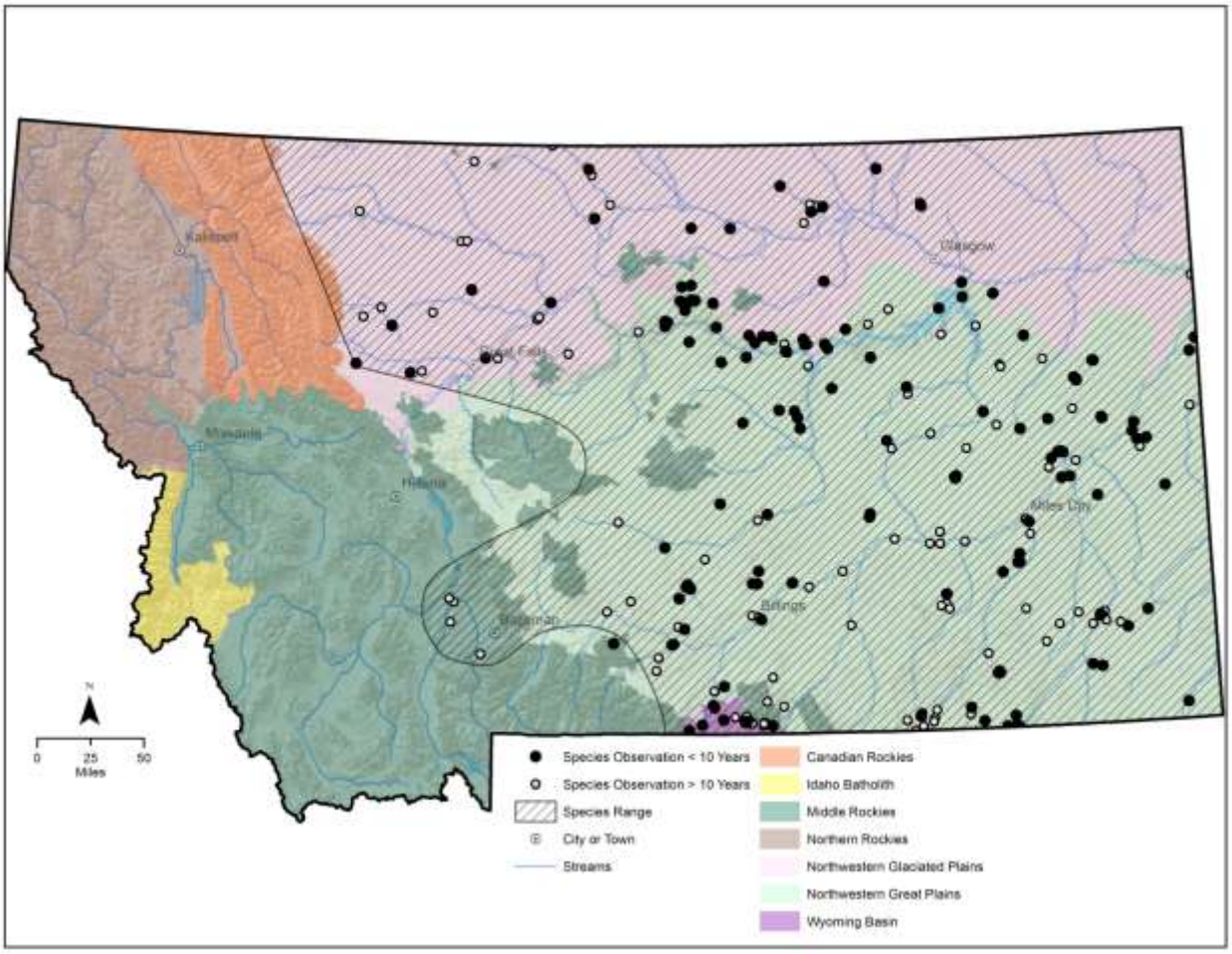

Figure 128. Montana range and observations of the greater short-horned lizard

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Pygmy Short-horned Lizard (*Phrynosoma douglasii*) **PSOC**

This species lacks a baseline survey and needs to be targeted for survey and inventory. There is no range map for this species in Montana.

Western Skink (*Plestiodon skiltonianus*) **SGCN**

State Rank: S3

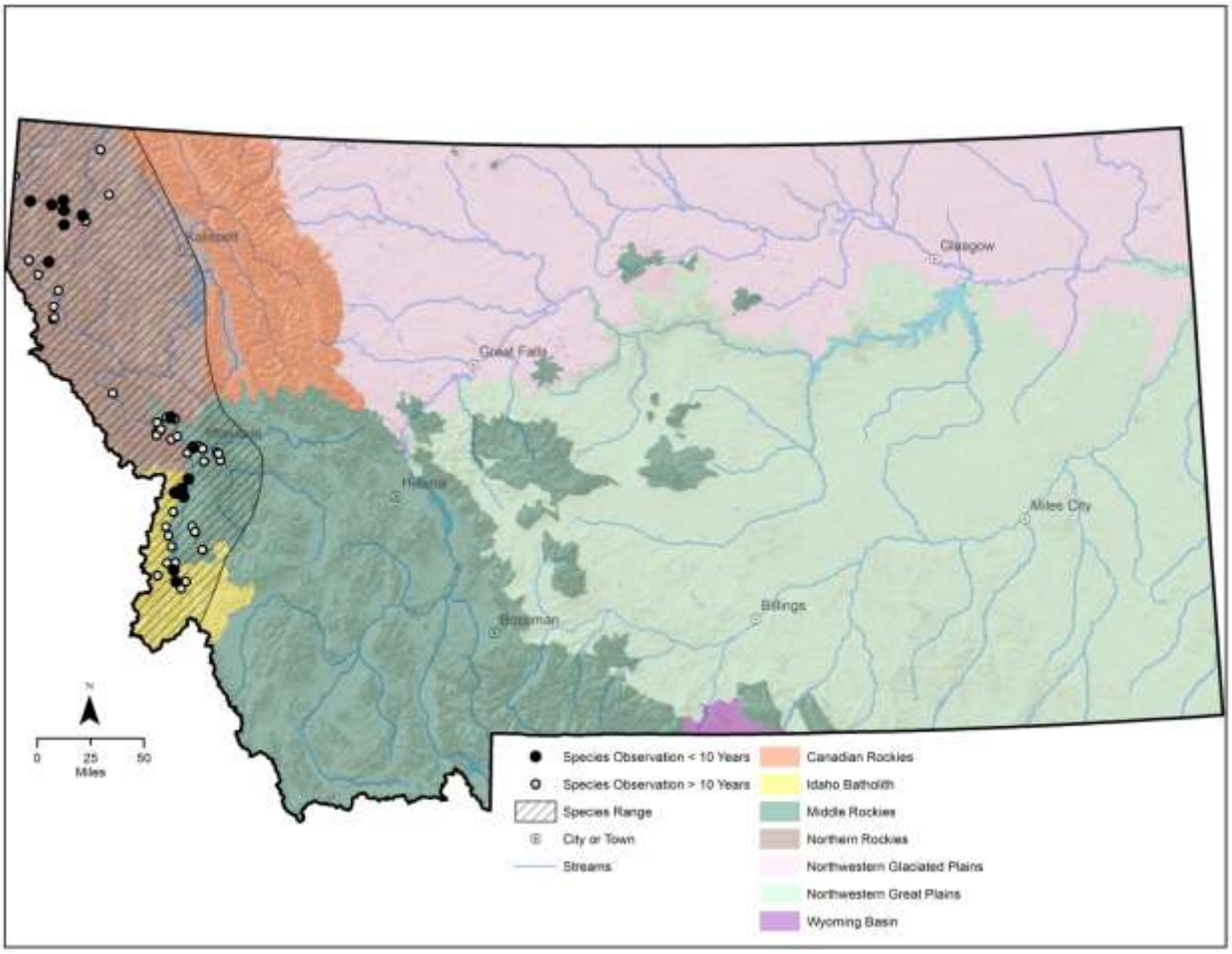

Figure 129. Montana range and observations of the western skink

This species lacks a baseline survey and needs to be targeted for survey and inventory.

Snapping Turtle (*Chelydra serpentina*) **SGCN**
State Rank: S3

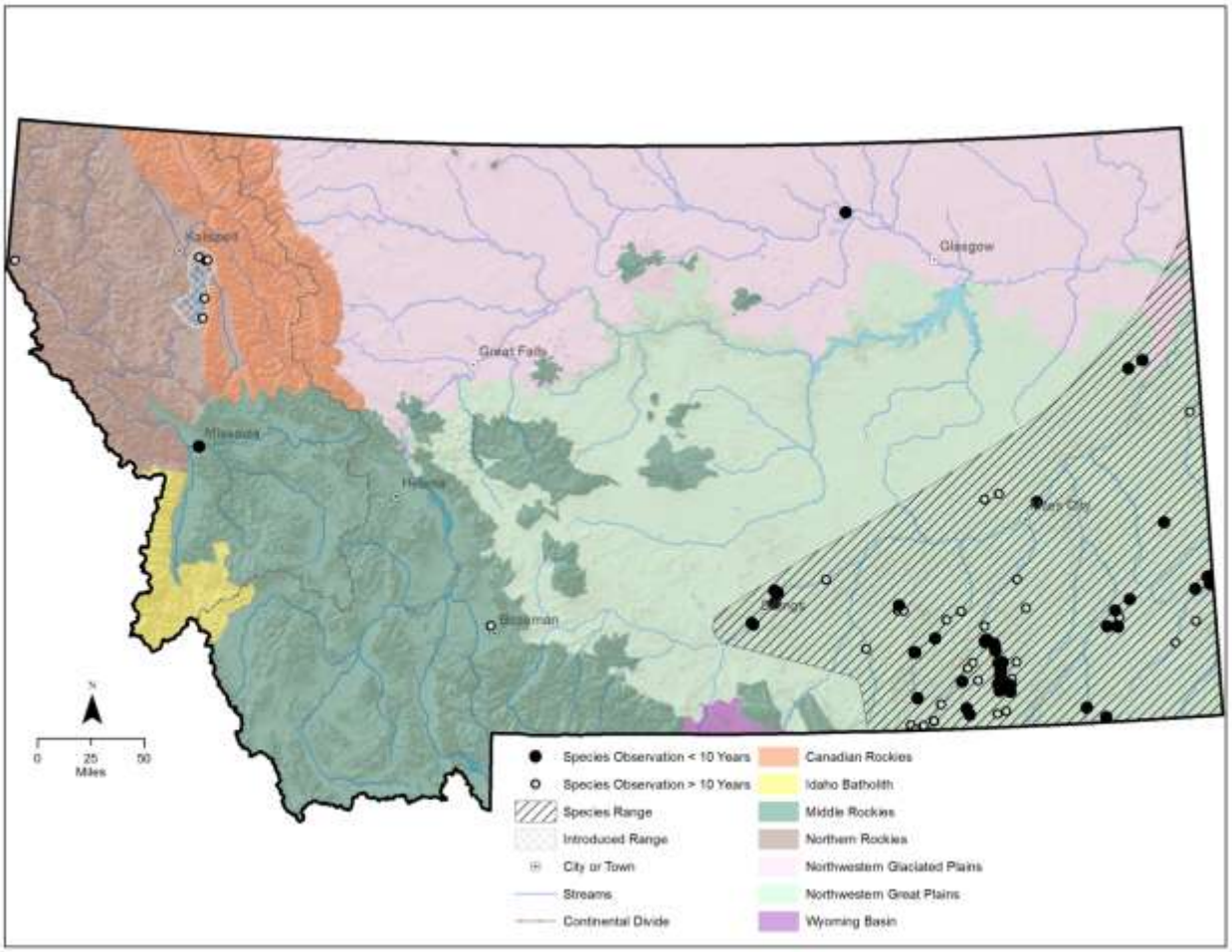

Figure 130. Montana range and observations of the snapping turtle

This species lacks a baseline survey and needs to be targeted for survey and inventory.

The following reptile SGIN are also SGCN. Information on these species can be found in the previous section, Species of Greatest Conservation Need.

Smooth Greensnake (*Opheodrys vernalis*) **SGCN**
This species lacks a baseline survey and needs to be targeted for survey and inventory. For more information, see Smooth Greensnake under Species of Greatest Conservation Need in the previous section.

Western Hog-nosed Snake (*Heterodon nasicus*) **SGCN**
This species lacks a baseline survey and needs to be targeted for survey and inventory. For more information, see Western Hog-nosed Snake under Species of Greatest Conservation Need in the previous section.

MONITORING AND ADAPTIVE MANAGEMENT

Individual states are challenged with the difficult task to evaluate and then communicate the effectiveness of their SWAP and the SWG program. The intricate nature of ecological interactions is compounded by the fact that a decade may pass before any changes are observed. Despite these difficulties, Congress and the Office of Management and Budget have required the states to provide results that demonstrate good use of the SWG funds allocated.

To address this, AFWA formed the Effectiveness Measures Working Group in 2009 to develop and test a framework and effectiveness measures for the SWG program (AFWA 2011). This group provided states the guidance they needed through a final report, *Measuring the Effectiveness of State Wildlife Grants: Final Report* (AFWA 2011). The AFWA effectiveness framework will help Montana improve conservation work through adaptive management and demonstrate to policy makers that SWG is a good investment.

While FWP will continue to track SWG funded work, there are many other FWP projects funded through other means that address actions found in the SWAP and forthcoming Implementation Plan. In fact, most of the FWP habitat, nongame, and management programs address many of the impacts and conservation actions identified in this plan for CTGCN and SGCN. SWAP actions also may be implemented by other agencies and organizations. All of these actions are difficult to quantify, but contribute to the overall objectives of the SWAP. FWP will track external actions to develop a comprehensive implementation picture for SWG when possible.

MONTANA'S APPROACH

The scope of the Montana's SWAP is tremendous and exceeds the current resources that would be necessary to fully implement all the conservation actions identified in the plan. As a result, there is a great need to prioritize projects, monitor the effectiveness of the SWAP actions implemented, and change the focus, objectives, and goals as needed.

Components of Montana's SWAP, its forthcoming Implementation Plan, and individual projects will be reviewed at set intervals to help determine the effectiveness of the implemented conservation actions and to ensure the highest priorities are being addressed.

- State Wildlife Action Plan – 10 years
    - Species of Greatest Conservation Need – annually
    - Species of Greatest Inventory Need – annually
- Implementation Plan – three to five years
- Individual projects – annually and at project end

FWP will be using the generic actions identified on pages 28-30 in AFWA's *Measuring the Effectiveness of State Wildlife Grants: Final Report* (2011) to maintain common language and to make tracking of implemented actions easier. FWP encourages other partner agencies and organizations to do the same to measure the effectiveness of all conservation actions and to make reporting on these actions more understandable.

Ultimately, the final test to show if conservation actions are working as intended, is the SGCN list. Changes in State Rank will serve as one indicator to help gauge if species are being successfully conserved in Montana. Overall, the movement of any species from a higher State Rank to a lower State Rank, or off the list entirely could indicate improvement. In some instances, SWAP actions may prevent the need to move a species to a higher (i.e., more at risk) rank. Movement to a higher rank may advocate for adjusting actions to better manage the species or its associated community type(s).

This SWAP SGCN list will be revised based on changes to the SOC list. These changes will be submitted to the USFWS no more than once annually for their review and approval.

While the forthcoming Implementation Plan will detail monitoring methodologies for specific priorities and projects, examples of monitoring efforts undertaken since the CFWCS (2006) was approved are described below.

HABITAT MONITORING

Along with FWP, many other agencies, NGOs, and the public assist in monitoring habitat health and restoration effort successes.

The Milk River Initiative

The objective of the Milk River Initiative (MRI) nongame monitoring effort was to establish baseline data on SGCN and species groups in need of inventory. The surveys were designed for long-term monitoring of the distribution and abundance of these species. Results from the monitoring efforts are used to prioritize wildlife conservation needs, implement management strategies on existing FWP conservation projects, enhance conservation planning efforts, and to provide guidance for adaptive management and successful conservation for both game and nongame species.

The MRI was designed, in part, to evaluate and monitor the effectiveness of FWP's wildlife habitat conservation and restoration programs on the abundance and distribution of nongame species, especially SGCN and species groups in need of inventory. Monitoring and adaptive management are necessary components of the process.

Four field seasons of the five-year MRI monitoring surveys were completed. During that time the project was expanded from evaluating three properties in 2008 to 14 properties in 2009 and 2010. FWP managed properties currently in the MRI monitoring program include WMAs, Conservation Easements, and Fishing Access Sites. Nongame species groups monitored include songbirds, owls, reptiles and amphibians, bats, great blue heron, bald eagles, and small mammals. Standardized protocols for these surveys in eastern Montana were designed in line with similar surveys being conducted in other portions of Montana. Results from the MRI songbird surveys were compared with results from the broader prairie riparian songbird monitoring efforts to determine if FWP managed properties are adequately meeting the needs of high priority species and maintaining overall riparian bird diversity along the Milk River

corridor. Repeat monitoring of these properties is planned for the coming years to detect changes in species diversity as continued habitat restoration efforts are conducted.

Sage Grouse Initiative Habitat Assessment

Greater sage-grouse hens were monitored on Sage-Grouse Initiative (SGI) contracted lands and compared with data on sage-grouse hens monitored in areas where there were no SGI grazing systems in place. Work completed included capturing and radio-marking hens, finding and monitoring nests, capturing and radio-marking chicks, and measuring key vegetation characteristics in sage-grouse habitat and in areas with varying grazing treatments. Radio telemetry was used to collect data on hen survival, nest success, and chick survival. Vegetation data at nests and at unused sites in potential sage-grouse nesting habitat was used to measure the influence of vegetation and grazing treatments on sage-grouse vital rates and habitat use. Data was also collected at rested and un-rested pastures on ranches included in SGI areas as well as non-SGI areas to get a separate measure regarding how vegetation responds to SGI grazing systems. In addition to the SGI and non-SGI comparison, each pasture that sage-grouse used was placed into one of four grazing treatments. These treatments were defined with respect to sage-grouse ecology rather than SGI grazing systems, so results could be extrapolated to other grazing systems.

Preliminary results from the first 3.5 years of this study indicate that SGI systems are having a positive impact. However, annual weather fluctuations and lag responses in habitat and sage-grouse population vital rates to habitat management preclude strong inferences from these first years. This project will be continued over the long-term to be able to more rigorously examine the preliminary results.

SPECIES MONITORING

Species monitoring is often conducted with partners, including state and federal agencies, NGOs, and the public.

Diversity Monitoring

In Montana, very little information existed on the status and distribution of a diverse assemblage of vertebrates, including small mammals, amphibians, terrestrial reptiles, and bats. The Montana diversity monitoring project was initiated to: 1) simultaneously provide information on a diverse suite of faunal groups; 2) provide baseline information on species' distributions, site occupancy rates, and detection probabilities that can be used to inform current species conservation status ranking and management efforts; 3) evaluate methodologies and preliminary estimates of site occupancy and detection rates in order to refine survey protocols for future monitoring efforts; 4) establish a baseline of information that can eventually be used to assess changes in distribution and status over time related to changes in habitat and/or management efforts; 5) identify immediate or future research needs for individual species, species assemblages, or habitats; and 6) identify gaps in species' ranges across the state and potentially create maps identifying patterns in individual or collective occupancy rates of species across the state.

Between 2008 and 2010, 3,863 individual surveys were conducted during 213 days at 3,048 unique locations within 282 individual quads in Montana. A total of 5,806 species detections were recorded, and of those detections, 84 unique species were identified. In addition to structured survey observations, 5,912 species observations were recorded incidentally at 2,634 different locations. We detected 21 SGCNs in Montana during the structured surveys.

Multi-Species Bird Monitoring

FWP, in conjunction with the Rocky Mountain Bird Observatory, USFS, BLM, Northern Great Plains Joint Venture, Avian Science Center, and other partners continued landbird monitoring throughout all of the Badlands and Prairies, Prairie Potholes, and Northern Rockies Bird Conservation Regions of Montana. The Integrated Bird Monitoring by Bird Conservation Region uses a spatially-balanced sampling design with Bird Conservation Region as the sampling frame and stratification by land management boundaries and ecoregional attributes. This monitoring design allows inferences about avian species distributions and population sizes from small scales to entire Bird Conservation Regions, facilitating conservation from fine scales to national and international levels. It also provides the baseline data necessary to prioritize habitats for conservation, restoration, and management.

Other landbird monitoring efforts were coordinated with Montana Audubon through its citizen science program. Efforts were targeted to complete recently abandoned breeding bird survey routes or at IBAs where baseline data was lacking.

MONITORING FISH POPULATIONS AND AQUATIC ECOLOGICAL HEALTH

FWP collects data on fish abundance, distribution, and trends to establish and maintain understanding of the overall health and well being of the state's fisheries, threatened and endangered species, and SGCN. Data collection and interpretation form the basis of FWP's understanding of aquatic resources in the state, and is necessary to make the best possible management decisions for sensitive species and their habitats. Monitoring information is used to evaluate trends in populations, success of conservation and restoration efforts, and to understand how habitat and biological changes, ranging from human-caused to natural changes, affect populations and their habitats.

The techniques used to sample fish and other components of the aquatic environment vary depending on the specific site, species sought, or monitoring question. Methods and techniques are constantly being evaluated and refined if necessary, and biologists rely on a combination of novel techniques as well as techniques and methods that honor past traditions that make data comparisons possible. FWP provides training to staff and resource partners to maintain skills and adherence to FWP guidelines.

Monitoring programs take many forms depending on program and resource needs. Site specific and finite monitoring projects are used to evaluate the success of conservation and restoration efforts. For example, successful reestablishment of WCT and YCT populations requires that a sufficient number of founding individuals are incorporated into the new population. To monitor success of these efforts, for 3-5 years biologists will monitor short and long-term survival of egg

and fish introductions, and ultimately whether introduced fish successfully reproduce. Depending on these surveys, it may be determined that a sufficient founding population has been established, or that additional introduction efforts are necessary to increase the abundance and genetic diversity of the population. Other project specific monitoring efforts include those related to habitat manipulations, like the response of fish populations to the removal of a migratory barrier.

Monitoring programs also can be species based. For example, FWP annually completes redd counts (i.e., spawner nest surveys) to monitor abundance and population trends of bull trout throughout western Montana. The effort includes most known local populations – over 100 monitoring sites. These spawning surveys are standardized by stream reach and season, and many have been in place for 20-30 years, providing a foundation for conservation and recovery of a species that is often hard to monitor.

Fish "community" monitoring efforts are often completed in larger prairie rivers (e.g., Missouri and Yellowstone rivers) and lakes and reservoirs. In these projects, typically standardized by location and season, techniques are used (e.g., seines, gill nets, trawls) to sample the wide range of species that are present. For example, on the lower Missouri River below Fort Peck Reservoir, benthic trawls, and min-fyke and trammel nets are annually deployed in standardized locations to collect information on a wide variety of species (n=35+) that includes the federally endangered pallid sturgeon and other SGCNs such as blue sucker, sauger, and sicklefin chub. These efforts help to monitor fish population trends related to such concerns as incompatible dam operations, and evaluate conservation efforts, including the monitoring of survival and abundance of hatchery introduced sturgeon and natural reproduction of wild adults.

In conclusion, aquatic habitat condition is a fundamental concern for all aquatic SGCN. Monitoring of aquatic habitats take many forms, and can be used to evaluate the success of restoration efforts and habitat improvements. An example of such habitat improvement and monitoring efforts are related to a CCAA for Arctic grayling conservation in the Big Hole Valley of southwest Montana. In this program, non-federal landowners voluntarily implement habitat conservation measures on their property to remove habitat threats to help improve the status of Arctic grayling. In return, landowners receive assurances that no future regulatory obligations will be required if Arctic grayling are listed as threatened or endangered. Since the CCAA's establishment, the program has enrolled over 150,000 acres of land, and completed over 225 specific habitat restoration projects like riparian fencing, grazing management plans, fish ladders, and streambank restoration. As stipulated in the CCAA permit, all of these projects require certain levels of monitoring to be completed for verification of improvements to Arctic grayling habitat, and FWP annually dedicates full time and seasonal personnel to implement the monitoring program.

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APPENDICES

Appendix A: Frequently used acronyms found in the SWAP

AFS: American Fisheries Society

AFWA: Association of Fish and Wildlife Agencies

ANS: Aquatic Nuisance Species

ATT: Aquatic Technical Team

BLM: Bureau of Land Management

BMP: Best Management Practice

BOR: Bureau of Reclamation

CAPS: Crucial Areas Planning System

CCAA: Candidate Conservation Agreement with Assurances

CFWCS: Comprehensive Fish and Wildlife Conservation Strategy

CRP: Conservation Reserve Program

CTGCN: Community Types of Greatest Conservation Need

DNRC: Department of Natural Resources and Conservation

ESA: Endangered Species Act

FWP: Montana Fish, Wildlife & Parks

IBA: Important Bird Area

LILB: Large Intact Landscape Block

MNHP: Montana Natural Heritage Program

MPPRC: Montana Piping Plover Recovery Committee

MRI: Milk River Initiative

NGO: Non-governmental Organization

NRCS: Natural Resources Conservation Service

NWR: National Wildlife Refuge

ORV: Off-road Vehicle

PSOC: Potential Species of Concern

RMP: Resource Management Plan

RNA: Research Natural Area

SGCN: Species of Greatest Conservation Need

SGI: Sage-Grouse Initiative

SGIN: Species of Greatest Inventory Need

SOC: Species of Concern

SWAP: State Wildlife Action Plan

SWG: State Wildlife Grant

TTT: Terrestrial Technical Team

USACOE: United States Army Corps of Engineers

USFS: United States Forest Service

USFWS: United States Fish and Wildlife Service

WAFWA: Western Association of Fish and Wildlife Agencies

WCT: Westslope Cutthroat Trout

WMA: Wildlife Management Area

WTPD: White-tailed Prairie Dog

YCT: Yellowstone Cutthroat Trout

YNP: Yellowstone National Park

Appendix B: State Wildlife Action Plan Road Map

Congress identified eight required elements that each State Wildlife Action Plan (SWAP) had to address for the 2005 submission. These elements have not been changed for the revisions and are still required to be addressed. In addition to these eight required elements, the Association of Fish and Wildlife Agencies' (AFWA) document, *Best Practices for State Wildlife Action Plans* (2012), was reviewed and some recommendations from it were incorporated into this SWAP.

This revision of Montana's Comprehensive Fish and Wildlife Conservation Strategy (CFWCS; FWP 2006) is considered a major revision by the U.S. Fish and Wildlife Service (USFWS). Several components of this revision were developed using completely different methodologies than the CFWCS (FWP 2006) and for others, more thorough descriptions are provided. What follows is an easy-to-read outline of the changes made in this SWAP revision for each of the eight required elements. Please see the identified pages for detailed information.

1. Information on the distribution and abundance of species of wildlife, including low and declining populations, as the state fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the state's wildlife. *Pages 122-296*.

As with the CFWCS, Montana Fish, Wildlife & Parks (FWP) and the Montana Natural Heritage Program (MNHP) Point Observation Database provided observation data for all species. The FWP and MNHP co-managed online Field Guide was used to develop the individual species pages in this SWAP.

The method of estimating low and declining populations for this revision was much different than the CFWCS. Instead of using the formula developed for the CFWCS, the tested and accepted method that FWP and MNHP have been using for a decade to identify Species of Concern (SOC) was used in this revision (MNHP and FWP 2004). This method is a standardized ranking system to denote global and state status (Master et al. 2003).

2. Descriptions of locations and relative condition of key habitats and community types essential to conservation of species identified in (1). *Pages 14-24; 30-58; 65-121*.

A different approach was taken to describe habitats and community types for the SWAP revision. Most technical team members felt the community type descriptions were too broad and wanted to address habitat at a finer scale than what was in the CFWCS.

3. Descriptions of problems which may adversely affect species identified in (1) or their habitats, and priority research and survey efforts needed to identify factors which may assist in restoration and improved conservation of these species and habitats. *Pages 25-29; 59-64; 122-261*.

Part of the process used to identify Focal Areas for this SWAP, was to identify threats and impacts to species and habitats. The teams recommended specific conservation actions at the community type and species levels.

4. Descriptions of conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions. *Pages 4-5; 25-29; 59-64; 122-261*.

Specific actions were identified for community types and species. These actions should be developed further in future project plans to make them relevant to each project. All actions recommended in this SWAP are equal in priority, as successful conservation of the species and communities in greatest need will require implementing all of the actions over time.

5. Proposed plans for monitoring species identified in (1) and their habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting these conservation actions to respond appropriately to new information or changing conditions. *Pages 297-301*.

Monitoring recommendations (if applicable) are identified for specific species, and to a lesser extent, community types. FWP will develop these recommendations in more detail in a follow up Implementation Plan. The Implementation Plan will be reviewed and perhaps revised based on data collected and new information, after the first three years of implementation.

AFWA's recommendation to use common language when describing conservation actions will be employed in tracking implementation of this SWAP (AFWA 2011). The specific actions identified in this plan will be tied to the generic actions identified by AFWA (AFWA 2011) for tracking purposes.

6. Descriptions of procedures to review the strategy at intervals not to exceed 10 years. *Pages 297-301*.

This SWAP will be a living document. As data and new information are collected, the SWAP will be revised accordingly, but no more than once per year. The appropriate correspondence will be sent to USFWS when asking to approve the revision(s). FWP's forthcoming Implementation Plan, as well as new information from our partners, will aid in revising the SWAP.

According to current Congressional rules, this SWAP needs to be fully reviewed, and perhaps revised, by 2024. While the SWAP will be constantly evaluated and modified on an annual basis as necessary, FWP will also undergo a thorough evaluation of the SWAP and its implementation by 2024 and will make necessary revisions by then. The results of 10 years of data collection and analysis will help to modify species status, habitat condition, and threats or impacts to species or their habitats. As with this current revision, all revisions will utilize the best available information and be able to direct Montana's conservation needs into the future in response to changing information.

7. Plans for coordinating the development, implementation, review, and revision of the plan with federal, state, and local agencies and Indian tribes that manage significant land and water areas within the state or administer programs that significantly affect the conservation of identified species and habitats. *Pages 2-3; 297-301*.

The Coordinator initially met with several staff of external agencies and organizations to inquire how they would like to be involved in the SWAP revision. The Coordinator then made recommendations to the Steering Committee chair as to which agencies and organizations should be on the technical team for the revision. The recommendations were based on levels of interest and expertise. Several external invitees responded and participated. Some team members were never able to attend a meeting and others had to discontinue participation. Funding, workload, and reduction in force all contributed to the levels of participation.

In addition to the formal technical team, other internal and external experts were consulted on every task the technical teams were asked to complete. In this way, additional cooperation and collaboration was achieved.

8. Broad public participation is an essential element of developing and implementing these plans, the projects that are carried out while these plans are developed, and the species in greatest need of conservation. *Pages 2-4*.

Members of agencies, organizations, and the general public were kept apprised of the revision via an introductory letter, webpage updates, press releases, and four newsletters.

Appendix C: Progress report since implementation of the Comprehensive Fish & Wildlife Conservation Strategy

PROGRESS REPORT: THE FIRST SEVEN YEARS

Shortly after the U.S. Fish and Wildlife Service (USFWS) approved Montana's Comprehensive Fish and Wildlife Conservation Strategy (CFWCS) in 2006, a Montana Fish, Wildlife & Parks (FWP) Steering Committee began developing a companion document to identify an implementation planning process to further refine priorities identified in the CFWCS. Because of limited funds, it was not possible to fund projects addressing every species or every community type in the CFWCS. The Implementation Plan identified a subset of species and community types on which to focus efforts for the first six years (FWP 2006).

FWP received just over $8.1M in State Wildlife Grant (SWG) funds since the 2006 CFWCS was approved. Although not everything in the Implementation Plan could be addressed with SWG funding, much work was done. FWP is able to track SWG funded work, but there are many other FWP projects funded through other means that address conservation actions found in the CFWCS and Implementation Plan. These projects may fulfill CFWCS actions incidentally, and therefore may not be recognized as CFWCS successes. In addition, any work other agencies and organizations may have conducted that have supported CFWCS actions is not tracked by FWP either. It is likely that many more actions have been addressed than FWP has the data for.

FWP intends to prudently track the implementation of the new State Wildlife Action Plan (SWAP) and subsequent Implementation Plan using methodologies and language outlined in the Association of Fish and Wildlife Agencies' (AFWA) *Measuring the Effectiveness of State Wildlife Grants – Final Report* (2011).

COMMUNITY TYPES

The community types below were identified in the 2006 Implementation Plan as habitats needing focused conservation efforts. What follows is a summary of accomplishments since CFWCS approval.

Mountain Streams, Prairie Rivers, and Prairie Streams: FWP has not implemented specific over-arching programs to include the conservation of these community types. However, the day-to-day activities of FWP's Fisheries Division, watershed groups, private landowners, and numerous state and federal resource agency partners, address most of the needs and priorities identified in the 2006 CFWCS. While there is no reasonable way to succinctly identify the extent of these efforts, particularly those guided by collaborating partners, FWP's *Statewide Fisheries Management Plan, 2013 – 2018* (FWP 2013a) is a synthesis of FWP's programs and projects and projects that address management issues related to mountain streams, prairie rivers, and prairie streams. In addition, many conservation easements and fee title acquisitions consider water resources in the evaluations.

Aspens: FWP has secured multiple conservation easements and fee title acquisitions that include healthy or in need of restoration aspen habitat. Habitat acquisition projects such as the Little Doney Lake Project that secured over 2,500 acres of mixed conifer and aspen habitat adjacent to the Blackfoot Clearwater Wildlife Management Area (WMA) have benefited a number of high priority species to include common loons, trumpeter swans, grizzly bears, Canada lynx, and bull trout. As a high priority community type, biologists are actively looking to secure and/or restore aspen habitat when possible and to educate landowners on the importance of these habitats. FWP contributed to a University of Montana passerine and aspen research project in which the impacts of conifer removal on nesting success was quantified for use in future management decision making.

FWP also works with land management agencies, especially the U.S. Forest Service (USFS), on aspen enhancement and restoration. FWP has also implemented actions on FWP land to address confer encroachment in aspen stands.

Riparian and Wetlands: FWP has secured multiple conservation easements and fee title acquisitions that include healthy or in need of restoration riparian and wetland habitat. FWP has particularly targeted habitats in critical floodplain zones, habitats currently vegetated by non-native and invasive plant species, and habitats experiencing natural cottonwood regeneration from recent flooding events. Land acquisitions such as the 700-acre island in the lower Yellowstone River, have increased protections for important wetland habitats that support a large diversity of species such as great blue herons, bald eagles, and spiny softshell turtles. The addition of numerous conservation easements along the Milk River in northeast Montana have added protections to private lands and increased the use of conservation minded land management practices. At the Milk River WMA, dense cattail marshes were burned to reduce cattail cover and increase open water. Future water level management will be adjusted to prevent cattail expansion and increase wetland productivity.

Recommendations on the use of setbacks as well as the maintenance of the natural hydrologic and ecologic function of wetlands is described in FWP's recently released *Fish and Wildlife Recommendations for Subdivision Development in Montana* (FWP 2012). Biologists use these tools to encourage landowners to conserve wetland and riparian habitats. Private and government planning offices across Montana have been provided with this document as well; several are incorporating recommendations in the document.

Sagebrush and Grassland Complexes: FWP has secured multiple conservation easements and fee title acquisitions that include healthy or in need of restoration sagebrush and grassland habitat. FWP has particularly targeted lands in need of restoration and known to be critical nesting habitat for bird species such as the greater sage-grouse and Sprague's pipit. Efforts to restore native vegetation on existing FWP WMAs such as Cree Crossing and Hinsdale have provided nesting, winter roost, and secure migration habitat for a diversity of species.

Over 200 acres were seeded on the Moline Ranch conservation easement to ensure the remaining native sagebrush grassland breaks habitat provides cover and food resources for a diversity of species as well as connectivity to other native habitat pieces nearby.

SPECIES OF GREATEST CONSERVATION NEED

FWP and partners finished a number of planning tools that aim to conserve habitat for all of the species listed below. These efforts included the 2012 release of the *Fish and Wildlife Recommendations for Subdivision Development in Montana* (FWP 2012) and completion of the Crucial Areas Planning System (CAPS), a web-based mapping service. The subdivision recommendations provide advice to developers and homeowners on the use of setbacks as well as the maintenance of the natural hydrologic and ecologic function of wetlands. The recommendations also include sections specific to grasslands designed to reduce the loss of native prairie and maintain larger, intact sections of grassland habitat. In addition, this document provides recommendations to reduce conflicts with bears and other wildlife.

CAPS mapping service was aimed at future planning for a variety of development and conservation purposes so fish, wildlife, and recreational resources can be considered earlier in the development process. CAPS is part of a larger conservation effort that recognizes the importance of landscape scale management of species and habitats by fish and wildlife agencies. Agency biologists use these tools to encourage landowners, developers, and planners to conserve habitats critical to all Montana wildlife.

The species below were identified in the 2006 Implementation Plan as needing focused conservation efforts. What follows is a summary of accomplishments since CFWCS approval.

Northern Leopard Frog: Surveys throughout Montana as part of the statewide diversity monitoring effort (2008-2010) revealed continued presence of northern leopard frogs across the range. However, populations continue to be threatened by habitat loss and invasive species, such as the American bullfrog, particularly in the western part of the state. Efforts are ongoing to secure habitat at northern leopard frog breeding sites and efforts to eradicate bullfrogs are underway in many locations by partners and private landowners.

The eastern Montana northern leopard frog populations were downlisted from the Montana Species of Concern (SOC) list from '*potentially at risk*' to '*apparently secure*' in 2009 based on statewide population information. The western population remains an SOC species, highly vulnerable to extirpation.

Burrowing Owl: Conservation easements and habitat restoration in native prairie habitats were conducted throughout much of the Montana burrowing owl range. Burrowing owl monitoring was conducted in combination with prairie dog and mountain plover surveys. Burrowing owls were also recorded as part of the 'Integrated Monitoring by Bird Conservation Region' project (2009-2013). This type of monitoring began in 2009 and will continue through 2014 and is an efficient way of adding observations for multiple species to Montana species databases. Monitoring and multi-species conservation efforts that cover all prairie and grassland birds resulted in a downgrading of the Montana SOC rank for the burrowing owl from '*at risk*' to '*potentially at risk*'.

Greater Sage-Grouse: FWPs use of conservation easements, grazing management agreements, and term leases to conserve and enhance native rangeland have benefited habitat for greater sage-grouse and other sagebrush associated wildlife across greater sage-grouse range. FWP continues

to encourage conservation of important seasonal habitats in collaboration with the Natural Resources Conservation Service (NRCS), Bureau of Land Management (BLM), and private landowners using a core-area strategy. FWP has assisted with conservation efforts of the Sage-Grouse Initiative and is facilitating a Greater Sage-Grouse Habitat Conservation Advisory Council. This Council is comprised of citizens and constituents and will gather information, furnish advice, and provide recommendations on policies and actions to the Governor for a statewide greater sage-grouse strategy to preclude the need to list the greater sage-grouse under the Endangered Species Act (ESA). Among FWP's habitat conservation accomplishments is the enrollment of 198,000 acres of sagebrush conservation leases on priority private lands. FWP is leading a research effort in central Montana to quantify the impacts of different grazing systems on brood rearing and adult survival. The greater sage-grouse remains an '*at risk*' species on the Montana SOC list.

Mountain Plover: Conservation easements were secured and habitat restoration in native grassland habitats was conducted in some mountain plover habitats in Montana. Vast occupied prairie dog habitat was documented in 2009, and since plovers are strongly associated with prairie dog colonies, this indicated that mountain plover populations are likely stable in Montana. Surveys conducted in 2011 and 2012 did not support this assumption however, since few plovers were found. Incidental observations outside of survey areas indicated continued plover occupancy throughout their range in Montana. This information contributed to a 'not warranted' for ESA listing finding by the USFWS in 2011. FWP encourages carefully managed grazing that maintains a mosaic of native grassland habitats to benefit mountain plovers as well as other species. Mountain plover habitat and species conservation measures have been established in many areas by various state and federal agencies. Mountain plovers remain an '*at risk*' species on the Montana SOC list.

Trumpeter Swan: Efforts, such as those in the Blackfoot Valley, to reintroduce trumpeter swans have contributed not only to the restoration of the species but also to the public support for swan conservation. From 2005-2009, over 100 swans were released in the Blackfoot Valley in hopes that breeding pairs would eventually establish in the area and persist into the future. Five pairs established in the area in 2013 and four pairs nested, but only one pair successfully fledged young. Monitoring of these birds and their habitat will continue and possible future releases into the area will enhance restoration efforts. Discussions to restore trumpeter swans to places in southwest Montana are underway. FWP participation in The Greater Yellowstone Trumpeter Swan Working Group ensures Montana is involved in rangewide conservation of the species. A number of conservation easements and habitat restoration projects have been completed to provide habitat for swans. The Little Doney Lake Project secured over 2,500 acres of mixed conifer and aspen habitat adjacent to the Blackfoot Clearwater WMA. This species is considered '*potentially at risk*' on the Montana SOC list.

Arctic Grayling: Since 2006, the focus of Arctic grayling restoration efforts in Montana include the implementation of the Candidate Conservation Agreement with Assurances (CCAA) for Arctic Grayling in the upper Big Hole River (Big Hole CCAA), and restoration of grayling to the Ruby River and Elk Lake (in the Centennial Valley). The goal of the Big Hole CCAA program is to increase distribution, abundance and resiliency of Big Hole Arctic grayling by improving, protecting, and making accessible habitats important to all life stages of the species. With over

30 landowners and 150,000 acres enrolled in the program, the Big Hole CCAA is currently the largest such effort in the United States. The program has resulted in improved stream flows and riparian and channel condition in more than 80 miles of stream and subsequently, grayling have increased in distribution and abundance. "Replication" of the remaining native Arctic grayling populations remains a focus of conservation efforts, and introductions of Big Hole grayling to the Ruby River have resulted in a naturally reproducing population. More recently, Red Rock Lakes' grayling were introduced to Elk Lake, a nearby but isolated lake that historically maintained an adfluvial grayling population. FWP is currently preparing a revised Montana Arctic Grayling Restoration Plan. The plan will include overall grayling restoration objectives, and identify opportunities to expand the species range in Montana. This species is a Montana SOC and is considered to be '*at high risk*' of extirpation.

Blue Sucker: FWP has used standardized annual sampling efforts and targeted radio telemetry projects in the Missouri River (above and below Fort Peck Reservoir), Yellowstone River, and associated major tributaries to these rivers, to identify and characterize blue sucker home areas, spawning queues, migration paths, and spawn timing and locations. These projects have provided significant information on the status, life history strategies, and habitat use of blue suckers; however, spawning success and juvenile recruitment remains unclear in some areas. FWP has coordinated with the U.S. Bureau of Reclamation (BOR) in modeling and trial efforts to regulate spring water releases from impoundments on the Missouri River (above Fort Peck Reservoir) and the Marias River in a way that better mimics natural water regimes important for blue sucker spawning. Through 2013, trial releases have only occurred from Tiber Dam on the Marias River. Regulated flow releases and their impacts on water quality (e.g., temperature and turbidity) from Fort Peck Dam continue to be a concern, as are impediments to migration from dams on the Yellowstone River including the Intake and Cartersville diversions. This Montana SOC is considered both '*at risk*' and '*potentially at risk*' depending on the population.

Burbot: Though there are areas of concern for the species (e.g., Kootenai River, Yellowstone River), routine and targeted sampling of burbot continue to indicate a widespread distribution in their historic range, including periodically high abundances in some relatively cold and deep reservoirs. Owing to an apparent "stable status" in most waters, burbot specific research studies have not been a priority of the department between 2006 and 2013, an exception being a movement and habitat use study in the lower Yellowstone River. Angler exploitation is periodically monitored during water body specific creel surveys, and relative to their status and low harvest rates, current burbot exploitation has not been deemed a concern. FWP's understanding of burbot status and population characteristics continuously increases through existing sampling efforts, and where status concerns have been noted, e.g. Yellowstone River, additional studies are being considered. Burbot currently are not a Montana SOC, and are considered '*apparently secure*' in Montana's state rank.

Pallid Sturgeon: As an ESA listed endangered species, pallid sturgeon receive considerable attention from FWP and other resource agencies. While the USFWS oversees recovery efforts for this sturgeon, the program is collaboratively developed and implemented through the Upper Basin Pallid Sturgeon Workgroup, of which FWP is a full participating member. Research efforts have resulted in considerable knowledge gained concerning the ecology and status of Pallid Sturgeon in the Missouri (above and below Fort Peck) and Yellowstone Rivers in Montana.

However, factors related to reservoir operations (particularly Fort Peck Reservoir) and passage (e.g., Intake Dam) in both drainages have not been addressed, and consequently sturgeon have not naturally recruited to the system in decades. Efforts to collect gametes from remaining wild adults (<120 individuals) has been very successful, and the subsequent introduction and high survival rate of resulting juvenile sturgeon ensures the persistence of the species in Montana for the foreseeable future. FWP has been closely involved in efforts to address passage concerns at Intake Dam, and is involved in planning efforts to create more natural flow regimes from reservoirs on the Missouri River above Fort Peck. Restoration of critical habitats, removal of barriers to migration, and minimizing the water quality impacts of reservoirs will continue to be a focus of FWP efforts for long-term pallid sturgeon recovery, which includes self-sustaining persistence. Pallid sturgeon are a Montana SOC and are considered to be '*at high risk*' of extirpation.

Westslope and Yellowstone Cutthroat Trout: Conservation and restoration of both subspecies of cutthroat trout continue to be a primary focus of general management activities and cutthroat specific programs in FWP Regions 1 - 5. Though the type of programs being implemented vary by location, generally efforts focus on habitat restoration; maintaining connectivity (e.g., removing barriers to movement) where the migratory life form is prevalent; reintroduction genetically "pure" cutthroat to historically occupied streams; "replicating" existing aboriginal populations; placement of barriers to non-native fish; and in some locations the removal of non-native trout species to reduce or eliminate competition and hybridization. Notable projects among the many efforts implemented over the last several years include the introduction of westslope cutthroat trout (WCT) to 65 miles of stream in the Cherry Creek drainage (Madison River basin); an on-going effort to remove hybridized trout from headwater lakes in the South Fork of the Flathead River drainage which will ultimately result in the removal of primary threats to WCT in nearly 1,900 miles of stream; and reintroduction of Yellowstone cutthroat trout (YCT) to 25 miles of stream in the Sage Creek drainage (Shoshone River basin). These, and numerous other similar efforts, are developed and implemented by both management biologists and biologists specifically dedicated to cutthroat conservation efforts. On a statewide level, cutthroat trout conservation efforts are guided by the *Memorandum of Understanding and Conservation Agreement for Westslope and Yellowstone Cutthroat Trout in Montana* (FWP 2007), and the *Yellowstone Cutthroat Trout Conservation Strategy for Montana* (FWP 2013b). Both cutthroat species are on the Montana SOC list and are considered to be '*at risk*'.

Grizzly Bear: Efforts to reduce human-caused mortality and proactively manage human-bear conflicts were carried out in all three grizzly bear recovery areas of Montana. Full time bear specialists worked across Montana to reduce conflicts by encouraging appropriate food and garbage storage and appropriate behavior while hunting or recreating in grizzly bear country. FWP participation in the Interagency Grizzly Bear Study Team and the ecosystem management teams ensures managers' concerns and conservation priorities are noted in the large scheme of conservation. A number of conservation easements or habitat restoration projects were conducted to provide habitat for grizzlies. This included the Little Doney Lake Project that secured over 2,500 acres of mixed conifer and aspen habitat adjacent to the Blackfoot Clearwater WMA. The grizzly bear is on the Montana SOC list and one population is considered to be '*at risk*' while the other populations are considered to be '*potentially at risk*'.

Black-tailed Prairie Dog: FWP led efforts to identify the highest priority prairie dog complexes in Montana and explore opportunities for landowner incentive or stewardship programs to keep prairie dogs on these complexes. Statewide mapping was conducted in 2009, and later five of the largest prairie dog complexes were mapped and ground-truthed to inform ongoing conservation discussions. Discussions with partners such as the NRCS and the Western Association of Fish and Wildlife Agencies (WAFWA) are ongoing to identify funding sources for landowner incentives and to focus conservation in some of these large complexes.

FWP is a partner in development and testing of the oral sylvatic plague vaccine and is supporting the field efficacy trials underway in northeast Montana. The Montana Prairie Dog Working Group continues to meet annually to establish the highest priority conservation needs for the species across the state.

These above efforts and the data collected during surveys contributed to the 'not warranted' finding for the black-tailed prairie dog issued by the USFWS in 2009. This species is a Montana SOC species and is considered '*potentially at risk*'.

White-tailed Prairie Dog: Translocation of white-tailed prairie dogs (WTPD) in south central Montana was intended to reestablish the species at colonies from which they had been extirpated and to provide prey and habitat for a variety of other wildlife. Translocation was also intended to ensure maintenance of a viable population of WTPDs in Montana. FWP translocated 44 prairie dogs within Carbon County with these intentions in mind and to remove individuals at colonies under threat from highway re-alignment. WTPD conservation in Montana also benefitted from FWP's leadership of the Montana Prairie Dog Working Group as well as involvement with WAFWA efforts to conserve prairie dogs. This species is on the Montana SOC list and is considered to be '*at high risk*' of extirpation.

Spiny Softshell Turtle: FWP has conducted spiny softshell surveys on both the Yellowstone and Missouri Rivers over the past six years. Results of these surveys did not change the Montana SOC status from a species '*potentially at risk*'. The threats to this species remain the same, e.g., interrupted natural hydrologic regime by dams and reservoirs. FWP partnered with Montana State University to conduct a habitat use study of spiny softshells on the Missouri River in 2010. Telemetry data indicated turtles could move long distances, with some movements of over 25 river miles. Island nests were difficult to find but intensive nest searching confirmed that nests are most susceptible to predators and changing water levels. Habitat conservation efforts along both the Yellowstone and Missouri Rivers provide critical habitat to spiny softshells and will continue to be a focus of FWP river and shoreline conservation projects.

SPECIES GROUPS OF GREATEST INVENTORY NEED

The following species groups were targeted for inventory in the 2006 Implementation Plan as there were not enough data to determine their level of conservation need. This summary outlines the progress to fill those data gaps.

Bats: Acoustic bat monitoring has been conducted at dozens of FWP properties, including conservation easements and WMAs, to bolster bat presence data within Montana databases. FWP

has partnered with the Montana Natural Heritage Program (MNHP) and cavers in Montana to gather information on cave use by bats to include data on maternity colonies and hibernacula. Since 2010, eight new hibernacula and dozens of new roost sites have been recorded. A network of over 50 long-term bat acoustic monitoring stations have been deployed across the state to gather baseline data on bat presence and activity levels.

Mussels: A three-year SWG-funded study, completed in 2009, documented the occurrence and distribution of three native and three introduced mussel species in Montana and Idaho. Approximately 1,150 sites were sampled during the comprehensive inventory effort that included all major drainages in Montana. Five of six mussel species were found to have secure populations, and in some cases were expanding their distribution. A notable concern was a significant reduction in the range of the native western pearlshell mussel. Owing to this reduced distribution and continued threats, the pearlshell was identified as a species at risk and classified as a Montana SOC in 2008. The western pearlshell remains a focus of inventory efforts and experimental translocation projects in the Blackfoot drainage. This inventory project was summarized in a 2010 report titled *Freshwater Mussels in Montana: Comprehensive Results from 3 years of SWG funded Surveys* (Stagliano 2010).

Prairie Fish: Between 1999 and 2007, prairie fish assemblages were sampled at nearly 1,700 sites in FWP Regions 4 – 7. A majority of these sites were of small, warm water streams that had not been previously sampled and included sites in the three major eastern Montana drainages – the Little Missouri, Missouri, and Yellowstone Rivers. Thirty-two native and 21 introduced species were captured during the project, and of the 500,000 fish collected, 92% were native. These efforts were summarized by in a report titled *Synthesis of Montana Prairie Stream Fish Surveys, 1999 – 2007* (Bramblett 2008). The surveys and report provides a foundation for future monitoring efforts and the basis for additional work to conserve these communities. Beyond this project, FWP continues to complete annual monitoring efforts for all species in the larger rivers in eastern Montana, often related to pallid sturgeon recovery efforts. Finally, work has been recently completed documenting the importance of connectivity between large prairie rivers and their tributaries (Duncan et al. 2012).

Reptiles: Terrestrial reptile surveys were conducted during the three-year Diversity Monitoring project (2008-2010). All south-facing rocky slopes were surveyed for reptiles within randomly selected sites across the state. Eight species were detected during Diversity Monitoring surveys and a number of range expansions were noted which included range expansions for all three Montana gartersnake species. Dozens of FWP properties including conservation easements and WMAs were also surveyed for reptiles as part of region-based monitoring. Data collected from all of this work filled many of the existing occupancy gaps for individual species. Spiny softshells were surveyed on both the Yellowstone and Missouri Rivers as part of specific monitoring or research projects.

Shorebirds: Shorebirds were recorded incidentally during the 2009-2010 Montana colonial waterbird surveys as well as during the multi-species 'Integrated Monitoring by Bird Conservation Region' project (2009-2013). Targeted shorebird surveys were not conducted, as monitoring of other species groups was identified as a higher priority.

DIVERSITY MONITORING

Many of the 500+ vertebrate species found in Montana lacked formal status assessments previous to 2008. Few monitoring efforts existed for these species and very few were statewide in scope, including both public and private lands. In 2008, MNHP and FWP designed a protocol for simultaneous multi-species survey for a three-year SWG-funded statewide effort. Quarter-quadrangle grid cells were selected at random across Montana. Within each cell all lentic sites were surveyed for amphibians and all south-facing rocky slopes were surveyed for reptiles. Dominant habitats within the cells were surveyed for bats using acoustic detectors and small-mammals using standard trap line techniques. The largest challenges included: securing private landowner contact information and permission, automating map creation for the hundreds of selected cells, preserving collected specimens, maintaining working acoustic equipment in inclement weather, housing and backing up huge amounts of data from remote locations, and analyzing large quantities of acoustic data. Data showed an investment of over 20,000 person hours for a total of 211 grid cells surveyed; 40 small mammal species detected in 2,486 captures; 16 bat species detected through thousands of acoustic calls; 12 amphibian species and eight reptile species detected; and 304 species detected as incidental observations. Numerous SOCs were detected and numerous range extensions were identified through this work. Occupancy modeling was conducted for many of the species detected.

Citation

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Montana Fish, Wildlife & Parks. 2013a. Montana Statewide Fisheries Management Plan, 2013-2018. Montana Fish, Wildlife & Parks, Helena, Montana. 478 pp.

Montana Fish, Wildlife & Parks. 2013b. Yellowstone Cutthroat Trout Conservation Strategy for Montana. Montana Fish, Wildlife & Parks, Helena, MT. 228 pp.

Stagliano, D. 2010. Freshwater mussels in Montana: comprehensive results from 3 years of SWG funded surveys. Montana Natural Heritage Program, Helena, Montana. 75 pp.

Appendix D: Questions asked Montana Fish, Wildlife & Parks employees via Survey Monkey prior to starting the State Wildlife Action Plan revision

COMPREHENSIVE FISH AND WILDLIFE CONSERVATION STRATEGY (CFWCS)

FWP's first CFWCS was submitted to the U.S. Fish and Wildlife Service in December 2005. All states are required to update their strategies by December 2015. FWP has committed to completing the CFWCS update by December 2013.

The following questions refer to the current strategy and the strategy update process.

13. Did you participate in the development of the CFCWS?
◯ Yes ◯ No

14. Were you satisfied with your participation in the development process?
◯ Yes ◯ Somewhat ◯ No

15. Were you satisfied with the development/planning process overall?
◯ Yes ◯ Somewhat ◯ No

The following topics are being considered for inclusion in the CFWCS update: game species, invertebrates (aquatic and terrestrial), climate change, connectivity, sensitive plant species addendum, and a wetland conservation strategy addendum.

16. Please provide your opinion about including any or all of components listed above in the CFWCS update.

17. Please describe any particular section/topic (existing or proposed) you feel should be added, removed, or elaborated on in the CFWCS update.

18. What can be done to make the final CFWCS product more user friendly?

Appendix E: List of external agencies and organizations met with to discuss the previous Comprehensive Fish and Wildlife Conservation Strategy prior to starting revision

Agency/Organization	Number of Staff
Montana Natural Heritage Program	3
National Park Service	1
U.S. Fish and Wildlife Service	2
U.S. Forest Service	5
American Wildlands	2
Center for Large Landscape Conservation	2
Defenders of Wildlife	3
Intermountain Joint Venture	1
Montana Audubon	1
National Wildlife Federation	2
The Nature Conservancy	1
The Wilderness Society	3
Wildlife Conservation Society	2

Appendix F: State Wildlife Action Plan revision guidance document, 27 March 2012

FINAL PROBLEM STATEMENT

FWP must revise the SWAP in a way that 1) guides decision making and prioritizes species and community types of greatest conservation need, 2) identifies and prioritizes threats to species and community types, 3) implements monitoring, inventory, and conservation of species, community types, and habitat, 4) incorporates effectiveness measures, 5) maximizes funding opportunities and partnerships, and 6) meets the Federal requirements (eight elements).

OBJECTIVES

Fundamental

The focus of the SWAP must be clearly understood and accepted.

The focus of the SWAP is community types and species of concern.

The SWAP should consider all fish and wildlife species' needs to prioritize habitat and Community Types of Greatest Conservation Need (CTGCN).

It must be clear how the SWAP fits into the overall department strategic plan.

- There must be integration with existing plans.

SWAP buy-in within FWP and external to FWP must be maximized.

- Maximize relevancy

The SWAP must deliver effective, strategic conservation.

- The SWAP must be usable for agency prioritization.
- The SWAP must minimize waste of time.
- The SWAP must minimize waste of money.
- Use existing plans where appropriate.
- Use existing processes where appropriate.

The SWAP must be effective for obtaining SWG dollars (eight required elements).

Means

The SWAP strategies must be incorporated into program and staff work plans.

The Species of Greatest Conservation Need (SGCN) will be the species found on the Species of Concern (SOC) list. The existing process for making changes to the SOC list will be included in the SWAP to ensure that the SOC list is always current.

The SWAP will use the SOC list to help prioritize CTGCN and SGCN.

The SWAP will identify and prioritize where conservation efforts should be focused.

The SWAP will consider habitat for all fish and wildlife species when prioritizing CTGCN.

The SWAP will utilize existing conservation tools (e.g., CAPS, the SOC list) to prioritize CTGCN.

The SWAP will only address species on the SOC list (SGCN) and CTGCN.

The SWAP will identify species on the SOC list that may be on the list due to lack of information. These species make be targeted for survey and inventory.

The SWAP will dovetail with existing FWP plans, identify what is currently being done, and incorporate existing efforts into the SWAP's strategies (e.g., Habitat Montana Plan, species specific management plans, recovery plans).

The SWAP will identify a process to aid FWP in prioritizing work for CTGCN and SGCN.

The SWAP must identify and track realistic benchmarks to demonstrate that FWP is maximizing efficiency.

The SWAP will include potential impacts of climate change, where applicable, when prioritizing community types and SGCN.

To keep the document relevant, the SWAP will identify a process to regularly (e.g., every five years) assess and, if necessary, modify CTGCN.

Appendix G: Lakes and reservoirs whose Tier ranks were increased because of importance to one or more SGCN

Lowland Lakes (17)

- Dickey Lake
- Elk Lake
- Flathead Lake
- Gehring Pond
- Glen Lake
- Holland Lake
- Lake Alva
- Lake Inez
- McDonald Lake
- Rainy Lake
- Red Rock Lake, lower
- Red Rock Lake, upper
- Seeley Lake
- Sophie Lake
- Swan Lake
- Upper Stillwater Lake
- Whitefish Lake

Lowland Reservoirs (7)

- Cabinet Gorge Reservoir
- Fort Peck Reservoir
- Hungry Horse Reservoir
- Lake Koocanusa
- Lower Willow Creek Reservoir
- Noxon Rapids Reservoir
- Thompson Falls Reservoir

Mountain Lakes (37)

- Akokala Lake
- Arrow Lake
- Big Salmon Lake
- Bowman Lake
- Bull Lake
- Cerulean Lake
- Cherry Lake
- Cracker Lake
- Cyclone Lake
- Frozen Lake
- Granite Lake
- Harrison Lake
- Kintla Lake
- Lake Isabel
- Lincoln Lake
- Lindbergh Lake
- Little Therriault Lake
- Logging Lake
- Lower Miner Lakes
- Lower Quartz Lake
- Middle Quartz Lake
- Mussigbrod Lake
- Otatso Lake
- Pintler Lake
- Quartz Lake
- Rogers Lake
- Silver Lake
- Slide Lake
- Squaw Lake
- Storm Lake
- Tally Lake
- Trout Lake
- Twin Lake (FWP Region 3)
- Twin Lake, lower (FWP Region 2)
- Twin Lake, upper (FWP Region 2)
- Upper Kintla Lake
- Upper Whitefish Lake

Mountain Reservoirs (2)

- East Fork Reservoir
- Painted Rocks Reservoir

Appendix H. Tiered Community Types

Aquatic Community Types

Community Type	Tier
Intermountain Valley Rivers	I
Intermountain Valley Streams	I
Mixed Source Rivers	I
Mountain Streams	I
Prairie Rivers	I
Prairie Streams	I
Select Lowland Lakes (52)	I
Select Mountain Lakes (36)	I
Select Lowland Reservoirs (12)	I
Select Mountain Reservoirs (1)	I
Lowland Lakes	II
Mountain Lakes	II
Lowland Reservoirs	III
Mountain Reservoirs	III

Terrestrial Community Types

Ecoregion	Community Type	Tier
Canadian Rockies	Alpine Sparse or Barren & Alpine Grassland and Shrubland	I
Canadian Rockies	Conifer-dominated Forest and Woodland (xeric-mesic)	I
Canadian Rockies	Deciduous Shrubland	I
Canadian Rockies	Floodplain and Riparian	I
Canadian Rockies	Montane Grassland	I
Canadian Rockies	Open Water	I
Canadian Rockies	Wetlands	I
Canadian Rockies	Cliff, Canyon, and Talus	II
Canadian Rockies	Conifer-dominated Forest and Woodland (mesic-wet)	II
Canadian Rockies	Deciduous Dominated Forest and Woodland	II
Canadian Rockies	Harvested Forest	II
Canadian Rockies	Mixed Deciduous/Coniferous Forest and Woodland	II
Canadian Rockies	Recently Burned	II
Canadian Rockies	Agriculture	III
Canadian Rockies	Developed	III
Canadian Rockies	Lowland/Prairie Grassland	III
Canadian Rockies	Sagebrush Steppe & Sagebrush-dominated Shrubland	III
Idaho Batholith	Conifer-dominated Forest and Woodland (mesic-wet)	I
Idaho Batholith	Conifer-dominated Forest and Woodland (xeric-mesic)	I
Idaho Batholith	Deciduous Dominated Forest and Woodland	I
Idaho Batholith	Deciduous Shrubland	I
Idaho Batholith	Floodplain and Riparian	I
Idaho Batholith	Montane Grassland	I
Idaho Batholith	Open Water	I
Idaho Batholith	Wetlands	I

Ecoregion	Community Type	Tier
Idaho Batholith	Alpine Sparse or Barren & Alpine Grassland and Shrubland	II
Idaho Batholith	Cliff, Canyon, and Talus	II
Idaho Batholith	Harvested Forest	II
Idaho Batholith	Recently Burned	II
Idaho Batholith	Agriculture	III
Idaho Batholith	Developed	III
Idaho Batholith	Mixed Deciduous/Coniferous Forest and Woodland	III
Idaho Batholith	Sagebrush Steppe & Sagebrush-dominated Shrubland	III
Middle Rockies	Conifer-dominated Forest and Woodland (xeric-mesic)	I
Middle Rockies	Deciduous Dominated Forest and Woodland	I
Middle Rockies	Floodplain and Riparian	I
Middle Rockies	Montane Grassland	I
Middle Rockies	Open Water	I
Middle Rockies	Sagebrush Steppe & Sagebrush-dominated Shrubland	I
Middle Rockies	Wetlands	I
Middle Rockies	Alpine Sparse or Barren & Alpine Grassland and Shrubland	II
Middle Rockies	Conifer-dominated Forest and Woodland (mesic-wet)	II
Middle Rockies	Deciduous Shrubland	II
Middle Rockies	Harvested Forest	II
Middle Rockies	Lowland/Prairie Grassland	II
Middle Rockies	Recently Burned	II
Middle Rockies	Agriculture	III
Middle Rockies	Bluff, Badland, and Dune	III
Middle Rockies	Cliff, Canyon, and Talus	III
Middle Rockies	Developed	III
Middle Rockies	Introduced Vegetation	III
Middle Rockies	Mining	III
Middle Rockies	Mixed Deciduous/Coniferous Forest and Woodland	III
Middle Rockies	Scrub and Dwarf Shrubland	III
Northern Rockies	Conifer-dominated Forest and Woodland (mesic-wet)	I
Northern Rockies	Conifer-dominated Forest and Woodland (xeric-mesic)	I
Northern Rockies	Deciduous Shrubland	I
Northern Rockies	Floodplain and Riparian	I
Northern Rockies	Montane Grassland	I
Northern Rockies	Open Water	I
Northern Rockies	Wetlands	I
Northern Rockies	Harvested Forest	II
Northern Rockies	Recently Burned	II
Northern Rockies	Agriculture	III
Northern Rockies	Alpine Sparse or Barren & Alpine Grassland and Shrubland	III
Northern Rockies	Cliff, Canyon, and Talus	III
Northern Rockies	Deciduous Dominated Forest and Woodland	III
Northern Rockies	Developed	III
Northern Rockies	Introduced Vegetation	III
Northern Rockies	Mining	III
Northern Rockies	Mixed Deciduous/Coniferous Forest and Woodland	III
Northwestern Glaciated Plains	Deciduous Dominated Forest and Woodland	I
Northwestern Glaciated Plains	Floodplain and Riparian	I

Ecoregion	Community Type	Tier
Northwestern Glaciated Plains	Lowland/Prairie Grassland	I
Northwestern Glaciated Plains	Montane Grassland	I
Northwestern Glaciated Plains	Open Water	I
Northwestern Glaciated Plains	Sagebrush Steppe & Sagebrush-dominated Shrubland	I
Northwestern Glaciated Plains	Wetlands	I
Northwestern Glaciated Plains	Bluff, Badland, and Dune	II
Northwestern Glaciated Plains	Conifer-dominated Forest and Woodland (xeric-mesic)	II
Northwestern Glaciated Plains	Deciduous Shrubland	II
Northwestern Glaciated Plains	Agriculture	III
Northwestern Glaciated Plains	Cliff, Canyon, and Talus	III
Northwestern Glaciated Plains	Conifer-dominated Forest and Woodland (mesic-wet)	III
Northwestern Glaciated Plains	Developed	III
Northwestern Glaciated Plains	Harvested Forest	III
Northwestern Glaciated Plains	Introduced Vegetation	III
Northwestern Glaciated Plains	Mixed Deciduous/Coniferous Forest and Woodland	III
Northwestern Glaciated Plains	Recently Burned	III
Northwestern Glaciated Plains	Scrub and Dwarf Shrubland	III
Northwestern Great Plains	Conifer-dominated Forest and Woodland (xeric-mesic)	I
Northwestern Great Plains	Deciduous Dominated Forest and Woodland	I
Northwestern Great Plains	Floodplain and Riparian	I
Northwestern Great Plains	Lowland/Prairie Grassland	I
Northwestern Great Plains	Montane Grassland	I
Northwestern Great Plains	Open Water	I
Northwestern Great Plains	Sagebrush Steppe & Sagebrush-dominated Shrubland	I
Northwestern Great Plains	Wetlands	I
Northwestern Great Plains	Bluff, Badland, and Dune	II
Northwestern Great Plains	Deciduous Shrubland	II
Northwestern Great Plains	Agriculture	III
Northwestern Great Plains	Alpine Sparse or Barren & Alpine Grassland and Shrubland	III
Northwestern Great Plains	Cliff, Canyon, and Talus	III
Northwestern Great Plains	Conifer-dominated Forest and Woodland (mesic-wet)	III
Northwestern Great Plains	Developed	III
Northwestern Great Plains	Harvested Forest	III
Northwestern Great Plains	Introduced Vegetation	III
Northwestern Great Plains	Mining	III
Northwestern Great Plains	Mixed Deciduous/Coniferous Forest and Woodland	III
Northwestern Great Plains	Recently Burned	III
Northwestern Great Plains	Scrub and Dwarf Shrubland	III
Wyoming Basin	Conifer-dominated Forest and Woodland (xeric-mesic)	I
Wyoming Basin	Floodplain and Riparian	I
Wyoming Basin	Lowland/Prairie Grassland	I
Wyoming Basin	Open Water	I
Wyoming Basin	Sagebrush Steppe & Sagebrush-dominated Shrubland	I
Wyoming Basin	Scrub and Dwarf Shrubland	I
Wyoming Basin	Wetlands	I
Wyoming Basin	Bluff, Badland, and Dune	II
Wyoming Basin	Cliff, Canyon, and Talus	II
Wyoming Basin	Agriculture	III

Ecoregion	Community Type	Tier
Wyoming Basin	Deciduous Dominated Forest and Woodland	III
Wyoming Basin	Deciduous Shrubland	III
Wyoming Basin	Developed	III
Wyoming Basin	Introduced Vegetation	III
Wyoming Basin	Montane Grassland	III

Appendix I: Factors considered in the identification of regional aquatic and terrestrial Focal Areas for Montana's State Wildlife Action Plan revision

Primary considerations

1. Species of Greatest Conservation Need presence, distribution, and richness – *data layers and expert knowledge*

2. Community Types of Greatest Conservation Need – Tier I will have the highest consideration – *data layers and expert knowledge*

3. Current impacts (e.g., oil and gas, roads) – *data layers and expert knowledge*

4. Future threats (e.g., urban development, resource extraction) – *data layers and expert knowledge*

   Magnitude
   - Area affected throughout (>50%) OR most or all species affected (>50%) OR severe damage or loss
   - Widespread (15-50%) OR many affected (25-50%) OR significant damage
   - Scattered (5-15%) OR some affected (5-25%) OR moderate damage
   - Local or none (<5%) OR few or none affected (<5%) OR little or no damage

   Urgency
   - Imminent; now - 3 years; High probability (50-100%)
   - Near term; 3-10 years; Moderate probability (10-49%)
   - Long term; > 10 years; Low probability or none (0-9%)

5. Large intact landscape blocks – *data layers* (Terrestrial Focal Areas only)

6. Connectivity – *data layers and expert knowledge*

Secondary considerations (in no particular order)

1. Other important species and their associated habitat needs – *data layers and expert knowledge*

2. Likelihood that SGCN populations and community types will persist for the foreseeable future (the next 20-30 years), if current conditions prevail – *expert knowledge*
   - Native communities are non-existent and/or native species have been extirpated
   - Poor Viability – High risk of community type or SGCN extirpation
   - Fair Viability – Conditions are non-optimal, such that persistence is uncertain OR likely to persist but not necessarily maintain current or historical size/area
   - Good Viability – Conditions are *favorable* for persistence of community types and SGCN; likely will continue into foreseeable future in the current condition or better (e.g., habitat will improve or SGCN population size will increase)

- Excellent Viability – Conditions are *optimal* for persistence of community types and SGCN; likely will continue into foreseeable future in the current condition or better (e.g., habitat will improve or SGCN population size will increase)

3. Restoration opportunities for SGCN and Community Types – *expert knowledge*
   - Irreversible
   - Reversible with difficulty and high expense/effort
   - Reversible with some difficulty and moderate expense/effort
   - Easily reversible with low expense/effort

4. Land protection status – *data layers*

5. Irrigation impacts/dewatering – *expert knowledge*

6. SGCN Climate Change Vulnerability Assessment – *data layers*

7. Uniqueness or rarity – *expert knowledge*

8. Watershed integrity – *data layers* (Aquatic Focal Areas only)

9. Future fisheries projects (existing investments) – *data layers and expert knowledge* (Aquatic Focal Areas only)

10. Value (e.g., wild and scenic rivers) – *data layers* (Aquatic Focal Areas only)

Social considerations

Relationships with landowners should be considered when identifying Focal Areas, though the first consideration must be to identify areas in Montana that are in greatest need of conservation, despite land ownership. Obviously cooperative landowners are necessary to implement actions on private land, but speculating if a landowner will be cooperative should not prevent an area from being *identified* as a Focal Area. Working collaboratively with landowners in subsequent steps (e.g., during the development of project work plans) will be necessary.

Appendix J: Tier I Aquatic Focal Areas

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

Ninety-three Tier I aquatic Focal Areas were identified. These ranged in size from a small mountain stream to the entire length of a major river. The larger Focal Areas were generally found in eastern Montana, where many Species of Greatest Conservation Need (SGCN) were found in the same water body. The approach to identify Focal Areas in western Montana was different as multiple SGCN ranges generally did not overlap. Many western Focal Areas were identified using a single species approach instead of the multi-species approach in the east. Therefore, large, single-system Focal Areas were identified in the east, and smaller Focal Areas in the west.

The Species of Greatest Conservation Need commonly found within each Focal Area are listed below. If you would like more information (e.g., other species, threats, and impacts) on individual Focal Areas, please contact FWP at mtswap@mt.gov.

While these areas were chosen to focus conservation efforts, it is not implied that efforts only be restricted to these areas.

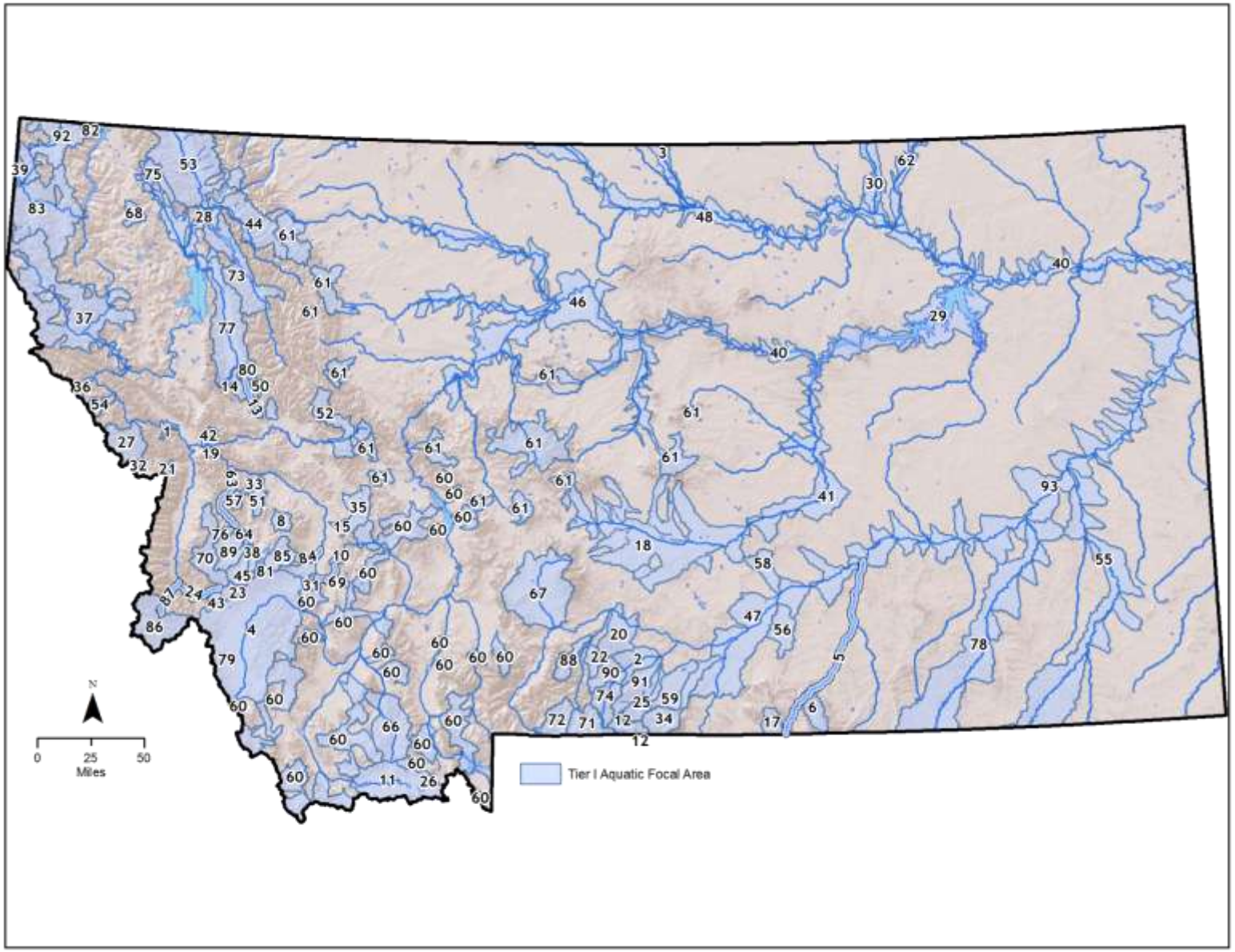

Figure 131. Tier I Aquatic Focal Areas

Number	Focal Area Name	Species
1	Albert Creek	Bull Trout
		Westslope Cutthroat Trout
2	Bad Canyon	Yellowstone Cutthroat Trout
3	Battle Creek	Iowa Darter
		Northern Redbelly Dace
		Sauger
4	Big Hole – Grayling	Arctic Grayling
		Lake Trout
		Western Pearlshell
		Westslope Cutthroat Trout
5	Bighorn River – linear	Sauger
		Sturgeon Chub
6	Black Canyon	Sauger
		Yellowstone Cutthroat Trout
7	Blacktail Creek	Westslope Cutthroat Trout
8	Boulder Creeks	Bull Trout
		Westslope Cutthroat Trout
9	Browns Gulch – linear	Western Pearlshell
		Westslope Cutthroat Trout
10	Browns Gulch	Western Pearlshell
		Westslope Cutthroat Trout
11	Centennial	Arctic Grayling
		Lake Trout
		Westslope Cutthroat Trout
12	Clarks Fork	Yellowstone Cutthroat Trout
13	Clearwater River – linear	Bull Trout
		Western Pearlshell
		Westslope Cutthroat Trout
14	Clearwater – Deer	Bull Trout
		Western Pearlshell
		Westslope Cutthroat Trout
15	Cottonwood Creek – Clark Fork	Westslope Cutthroat Trout
16	Cottonwood Creek – North	Bull Trout
		Westslope Cutthroat Trout
17	Crooked Creek	Yellowstone Cutthroat Trout
18	Dace Distribution	Northern Redbelly Dace
		Northern Redbelly x Finescale Dace
		Westslope Cutthroat Trout

Number	Focal Area Name	Species
19	Deer Creek	Bull Trout Westslope Cutthroat Trout
20	Deer Creeks	Yellowstone Cutthroat Trout
21	Dick Creek	Bull Trout Westslope Cutthroat Trout
22	East Boulder	Yellowstone Cutthroat Trout
23	East Fork Bitterroot River	Bull Trout Westslope Cutthroat Trout
24	East Fork Bitterroot River – linear	Bull Trout Western Pearlshell Westslope Cutthroat Trout
25	East Rosebud	Yellowstone Cutthroat Trout
26	Elk Lake – Lake Trout	Arctic Grayling Lake Trout Westslope Cutthroat Trout
27	Fish Creek	Bull Trout Westslope Cutthroat Trout
28	Flathead	Bull Trout Pygmy Whitefish Westslope Cutthroat Trout
29	Fort Peck 2	Blue Sucker Paddlefish Pallid Sturgeon Sauger
30	Frenchman	Iowa Darter
31	German Gulch	Westslope Cutthroat Trout
32	Granite Creek	Bull Trout Westslope Cutthroat Trout
33	Harvey Creek	Bull Trout Westslope Cutthroat Trout
34	Lake Fork of Rock Creek	Yellowstone Cutthroat Trout
35	Little Blackfoot	Westslope Cutthroat Trout
36	Little Joe Creek	Bull Trout Westslope Cutthroat Trout
37	Lower Clark Fork	Bull Trout Western Pearlshell Westslope Cutthroat Trout
38	Lower East Fork Rock Creek	Bull Trout

Number	Focal Area Name	Species
38	Lower East Fork Rock Creek	Westslope Cutthroat Trout
39	Lower Kootenai	Bull Trout
		Columbia Basin Redband Trout
		Torrent Sculpin
		Western Pearlshell
		Westslope Cutthroat Trout
		White Sturgeon
40	Lower Missouri	Blue Sucker
		Iowa Darter
		Northern Redbelly Dace
		Northern Redbelly x Finescale Dace
		Paddlefish
		Pallid Sturgeon
		Pearl Dace
		Sauger
		Shortnose Gar
		Sicklefin Chub
		Sturgeon Chub
41	Lower Musselshell	Blue Sucker
		Northern Redbelly Dace
		Northern Redbelly x Finescale Dace
		Sauger
42	Lower Rattlesnake Creek	Bull Trout
		Westslope Cutthroat Trout
43	Meadow Creek – Bitterroot	Bull Trout
		Westslope Cutthroat Trout
44	Middle Fork Flathead River – Non-wilderness	Bull Trout
		Westslope Cutthroat Trout
45	Middle Fork Rock Creek	Bull Trout
		Westslope Cutthroat Trout
46	Middle Missouri	Blue Sucker
		Northern Redbelly Dace
		Northern Redbelly x Finescale Dace
		Paddlefish
		Pallid Sturgeon
		Sauger
		Sturgeon Chub
47	Middle Yellowstone/Lower Clark Fork	Sauger
		Yellowstone Cutthroat Trout

Number	Focal Area Name	Species
48	Milk River	Blue Sucker
		Iowa Darter
		Northern Redbelly Dace
		Northern Redbelly x Finescale Dace
		Paddlefish
		Pallid Sturgeon
		Pearl Dace
		Sauger
		Shortnose Gar
		Sicklefin Chub
		Sturgeon Chub
49	Mill-Willow	Westslope Cutthroat Trout
50	Morrell Creek	Bull Trout
		Westslope Cutthroat Trout
51	North and South Forks Lower Willow Creek	Western Pearlshell
		Westslope Cutthroat Trout
52	North Fork Blackfoot River – Scapegoat Wilderness	Bull Trout
		Westslope Cutthroat Trout
53	North Fork Flathead River	Bull Trout
		Westslope Cutthroat Trout
54	Oregon Gulch/Cedar Creek	Bull Trout
		Westslope Cutthroat Trout
55	Powder River	Blue Sucker
		Paddlefish
		Sauger
		Sturgeon Chub
56	Pryor Creek	No SGCN documented
57	Ranch Creek	Bull Trout
		Westslope Cutthroat Trout
58	Razor Creek	No SGCN documented
59	Redlodge Creek	Yellowstone Cutthroat Trout
60	Region 3 WCT Distribution	Arctic Grayling
		Western Pearlshell
		Westslope Cutthroat Trout
61	Region 4 WCT Distribution	Northern Redbelly Dace
		Westslope Cutthroat Trout
62	Rock Creek	Iowa Darter
63	Rock Creek – linear	Bull Trout

Number	Focal Area Name	Species
63	Rock Creek – linear	Westslope Cutthroat Trout
64	Rock Creek Mainstem	Bull Trout
		Westslope Cutthroat Trout
65	Ross Fork Rock Creek	Bull Trout
		Western Pearlshell
		Westslope Cutthroat Trout
66	Ruby River	Arctic Grayling
		Westslope Cutthroat Trout
67	Shields YCT	Yellowstone Cutthroat Trout
68	Sheppard-Good Creek WCT Conservation Population	Bull Trout
		Westslope Cutthroat Trout
69	Silver Bow Creek – linear	Westslope Cutthroat Trout
70	Skalkaho-Burnt Fork Bitterroot	Bull Trout
		Westslope Cutthroat Trout
71	Slough Creek	Yellowstone Cutthroat Trout
72	Slough/Hell Roaring Creek	Yellowstone Cutthroat Trout
73	South Fork Flathead River – Non-wilderness	Bull Trout
		Pygmy Whitefish
		Westslope Cutthroat Trout
74	Stillwater	Yellowstone Cutthroat Trout
75	Stillwater River (Flathead River)	Bull Trout
		Westslope Cutthroat Trout
76	Stoney Creek – R2	Bull Trout
		Westslope Cutthroat Trout
77	Swan River	Bull Trout
		Pygmy Whitefish
		Westslope Cutthroat Trout
78	Tongue River	Blue Sucker
		Paddlefish
		Sauger
		Sturgeon Chub
79	Twin Lake – Lake Trout	Arctic Grayling
		Lake Trout
		Westslope Cutthroat Trout
80	Upper Clearwater	Bull Trout
		Western Pearlshell
		Westslope Cutthroat Trout
81	Upper East Fork Rock Creek and East Fork Reservoir	Bull Trout

Number	Focal Area Name	Species
81	Upper East Fork Rock Creek and East Fork Reservoir	Westslope Cutthroat Trout
82	Upper Kootenai River North	Bull Trout
		Westslope Cutthroat Trout
83	Upper Kootenai River South	Bull Trout
		Columbia Basin Redband Trout
		Pygmy Whitefish
		Torrent Sculpin
		Westslope Cutthroat Trout
		White Sturgeon
84	Warm Springs Creek – linear	Bull Trout
		Westslope Cutthroat Trout
85	Upper Warm Springs Creek	Bull Trout
		Westslope Cutthroat Trout
86	West Fork Bitterroot River	Bull Trout
		Westslope Cutthroat Trout
87	West Fork Bitterroot River – linear	Bull Trout
		Western Pearlshell
		Westslope Cutthroat Trout
88	West Fork Boulder	Yellowstone Cutthroat Trout
89	West Fork Rock Creek Drainage	Bull Trout
		Western Pearlshell
		Westslope Cutthroat Trout
90	West Fork Stillwater	Yellowstone Cutthroat Trout
91	West Rosebud	Yellowstone Cutthroat Trout
92	Yaak River	Bull Trout
		Columbia Basin Redband Trout
		Western Pearlshell
		Westslope Cutthroat Trout
93	Yellowstone River	Blue Sucker
		Iowa Darter
		Northern Redbelly Dace
		Paddlefish
		Pallid Sturgeon
		Sauger
		Shortnose Gar
		Sicklefin Chub
		Sturgeon Chub

Appendix K: Tier II Aquatic Focal Areas

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

One hundred and sixty-four Tier II aquatic Focal Areas were identified. If you would like more information (e.g., other species, threats, and impacts) on individual Focal Areas, please contact FWP at mtswap@mt.gov.

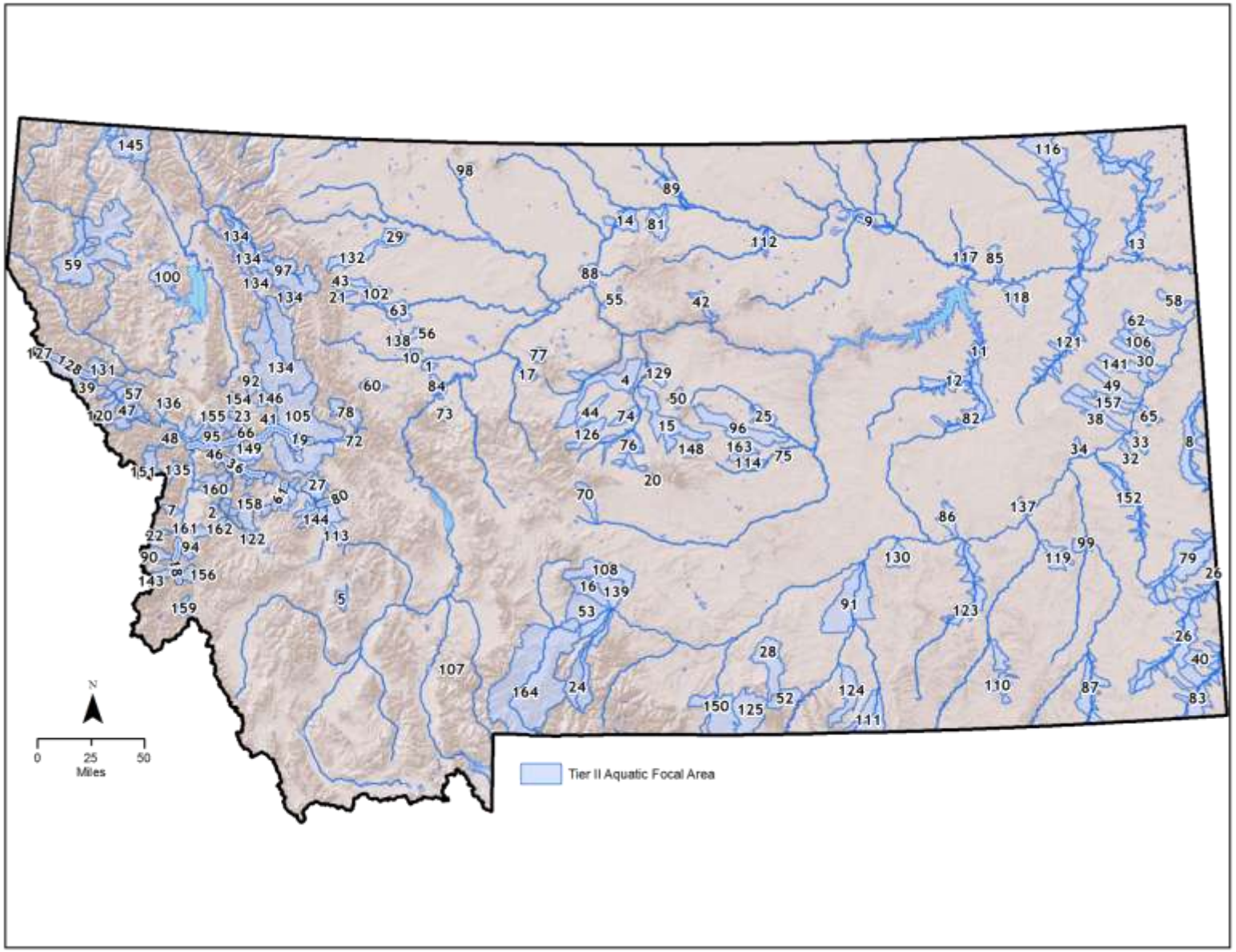

Figure 132. Tier II Aquatic Focal Areas

Number	Focal Area Name
1	Adobe Creek Redbelly Distribution
2	Alder Creek
3	Antelope Gulch - Wood Creek
4	Arrow Creek Redbelly Distribution
5	Basin Creek
6	Bateman Creek - Gillespie Creek
7	Bear Creek - Bitterroot
8	Beaver Creek
9	Beaver creek - middle
10	Big Coulee Creek Redbelly Distribution
11	Big Dry Creek R6A
12	Big Dry Creek R7
13	Big Muddy
14	Big sandy and beaver
15	Big Spring Creek Redbelly Distribution
16	Big Timber
17	Big Willow Creek Redbelly Distribution
18	Bitterroot River - Line
19	Blackfoot River - Line
20	Blake Creek Redbelly Distribution
21	Blindhorse Creek Redbelly Distribution
22	Blodgett Creek
23	Boles Creek
24	Boulder
25	Box Elder Creek Redbelly Distribution
26	Boxelder Creek
27	Brock Creek
28	Brushy Fork of Willow Creek
29	Bullhead Creek Redbelly Distribution
30	Burns Creek
31	Cabin Creek R2
32	Cabin Creek R7
33	Cedar Creek
34	Cherry Creek
35	Clark Fork River - Johnson Creek
36	Clark Fork River - Line
37	Clark Fork River - Thompson Creek
38	Clear Creek
39	Cold Creek
40	Cottonwood Creek - Little Missouri
41	Cottonwood Creek - South
42	Cow Creek
43	Cow Creek Redbelly Distribution
44	Coyote Creek Redbelly Distribution
45	Cramer Creek
46	Crystal Creek
47	Deep Creek
48	Deep/Rock Creek
49	Deer Creek and North Fork Deer Creek
50	Deer Creek Redbelly Distribution
51	Douglas Creek
52	Dry Head
53	Duck Creek
54	Dunkleberg Creek
55	Eagle Creek Redbelly Distribution
56	Fairfield Redbelly Distribution
57	First and Second Creek
58	First Hay Creek
59	Fisher River
60	Flat Creek Redbelly Distribution
61	Flint Creek - Line
62	Fox Creek
63	Gamble Coulee Redbelly Distribution
64	Gilbert Creek
65	Glendive Creek
66	Gold-Belmont Creek
67	Grant Creek
68	Greenough Creek
69	Hay Creek
70	Haymaker - WCT
71	Hogback Creek
72	Hogum Creek
73	Huff Creek Redbelly Distribution
74	Indian Creek Redbelly Distribution
75	Johnson Coulee Redbelly Distribution
76	Judith River Redbelly Distribution
77	Keaster Creek Redbelly Distribution
78	Landers Fork
79	Little Beaver Creek
80	Little Blackfoot River - Line
81	Little box elder and clear creek
82	Little Dry Creek
83	Little Missouri River
84	Little Muddy - Bird Creek

Number	Focal Area Name
85	Little Porcupine
86	Little Porcupine Creek
87	Little Powder River
88	Little Sandy Creek Redbelly Distribution
89	Lodge creek
90	Lost Horse Creek
91	Lower Bighorn
92	Lower Clearwater River
93	Lower Gold Creek
94	Lower Sleeping Child Creek
95	Marshall Creek
96	McDonald Creek Redbelly Distribution
97	Middle Fork Flathead - Wilderness
98	Miners Coulee Redbelly Distribution
99	Mizpah Creek
100	Mount-Truman Creek WCT Cons Pop
101	Mountain Creek
102	Muddy Creek Redbelly Distribution
103	Nemote Creek
104	Ninemile Creek Headwaters
105	North Fork Blackfoot
106	North Fork Burns Creek
107	North Fork Spanish Creek
108	North Fork Sweet Grass
109	O'Keefe Creek
110	Otter Creek
111	Pass Creek
112	Peoples Creek
113	Peterson Creek
114	Pike Creek Redbelly Distribution
115	Pikes-Willow
116	Poplar River
117	Porcupine
118	Prairie Elk
119	Pumpkin Creek
120	Quartz Creek
121	Redwater river
122	Rock Creek - mallard creek
123	Rosebud Creek
124	Rotten Grass
125	Sage Creek
126	Sage Creek Redbelly Distribution
127	Saint Regis
128	Saint Regis River - Line
129	Salt Creek Redbelly Distribution
130	Sarpy Creek
131	Seventeenmile Creek
132	Sheep Creek Redbelly Distribution
133	Smart Creek - Henderson Creek Complex
134	South Fork Flathead - Wilderness
135	South Lolo Creek
136	Stony Creek
137	Sunday Creek
138	Sunnyslope Canal
139	Sweet Grass
140	Tamarack Creek
141	Thirteenmile Creek
142	Threemile Creek - Bitterroot
143	Tin Cup Creek
144	Tin Cup Joe Creek
145	Tobacco River
146	Trail Creek
147	Tyler Creek
148	Tyler Creek Redbelly Distribution
149	Union-Ashby
150	Upper Clarks Fork
151	Upper Lolo Creek
152	Upper OFallon Creek
153	Upper Petty Creek
154	Upper Placid Creek
155	Upper rattlesnake Creek
156	Upper Rye Creek
157	Upper Sevenmile Creek
158	Upper Willow Creek Complex
159	Warm Springs Creek - Bitterroot
160	Welcome Creek
161	Willow Creek - Bitterroot
162	Wyman Creek
163	Yellow Water Creek Redbelly Distribution
164	Yellowstone - YCT

Appendix L: Tier I Terrestrial Focal Areas

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

Fifty-five Tier I terrestrial Focal Areas were identified. These ranged in size from a small area (23,409 acres) providing connectivity in northwestern Montana, to a large contiguous sagebrush and grassland landscape in eastern Montana (2,548,909 acres). It is clear by looking at the map below that the approach to identify terrestrial Focal Areas differed east and west of the Continental Divide.

In eastern Montana, the teams focused on large intact landscapes to provide the largest area possible to develop conservation actions for multiple Species of Greatest Conservation Need (SGCN). Connectivity between protected landscapes (e.g., wilderness areas, roadless areas) was the focus in the western part of the state, resulting in numerous smaller Focal Areas.

The Species of Greatest Conservation Need commonly associated with the community types within each Focal Area are listed below. If you would like more information (e.g., other species, threats, and impacts) on individual Focal Areas, please contact FWP at mtswap@mt.gov.

While these areas were identified to help focus conservation efforts, it is not implied that efforts only be restricted to these areas.

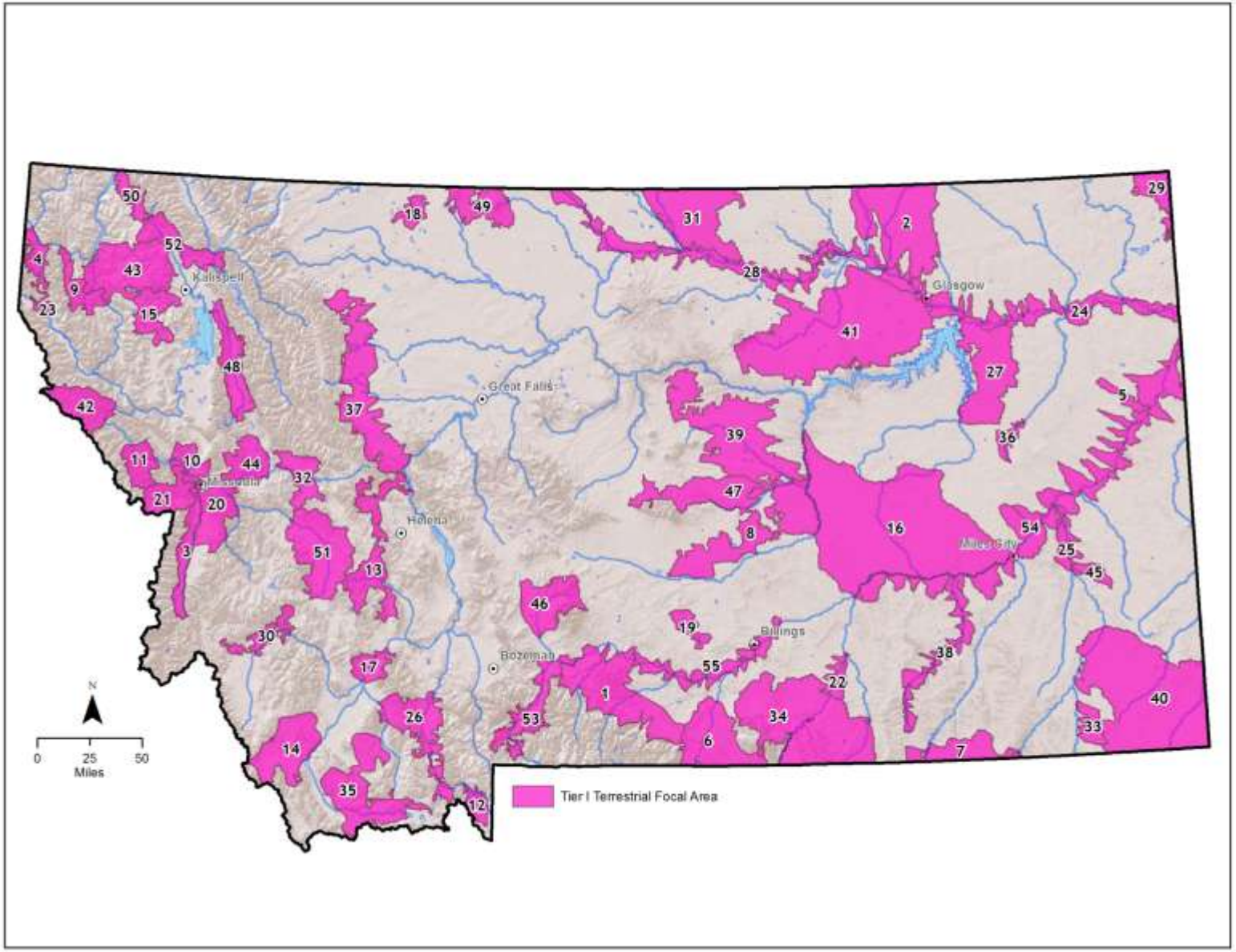

Figure 133. Tier I Terrestrial Focal Areas

Number	Focal Area Name	Animal Subgroup	Species Name
1	Beartooth Face	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Rosy-Finch
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Trumpeter Swan
		Birds	Varied Thrush

Number	Focal Area Name	Animal Subgroup	Species Name
1	Beartooth Face	Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Mammals	White-tailed Prairie Dog
		Mammals	Wolverine
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
2	Bittercreek	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Black-necked Stilt
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron

Number	Focal Area Name	Animal Subgroup	Species Name
2	Bittercreek	Birds	Greater Sage-Grouse
		Birds	Horned Grebe
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Peregrine Falcon
		Birds	Piping Plover
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sedge Wren
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Mammals	Black-tailed Prairie Dog
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Preble's Shrew
		Mammals	Pygmy Shrew
		Mammals	Swift Fox
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Smooth Greensnake
		Reptiles	Western Hog-nosed Snake
3	Bitterroot – Clark Fork Riparian Corridor	Amphibians	Coeur d'Alene Salamander
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Tern

Number	Focal Area Name	Animal Subgroup	Species Name
3	Bitterroot – Clark Fork Riparian Corridor	Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Sage Thrasher
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Preble's Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
4	Bull River	Amphibians	Coeur d'Alene Salamander
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper

Number	Focal Area Name	Animal Subgroup	Species Name
4	Bull River	Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
5	Burns Creek	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow

Number	Focal Area Name	Animal Subgroup	Species Name
5	Burns Creek	Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Least Tern
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
6	Cottonwood Triangle	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Rosy-Finch
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo

Number	Focal Area Name	Animal Subgroup	Species Name
6	Cottonwood Triangle	Birds	Black-necked Stilt
		Birds	Blue-gray Gnatcatcher
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat

Number	Focal Area Name	Animal Subgroup	Species Name
6	Cottonwood Triangle	Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Mammals	White-tailed Prairie Dog
		Mammals	Wolverine
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
7	Decker	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk

Number	Focal Area Name	Animal Subgroup	Species Name
7	Decker	Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
8	Devil's Basin	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Black-necked Stilt
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Common Tern

Number	Focal Area Name	Animal Subgroup	Species Name
8	Devil's Basin	Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
9	East Cabinet Front	Amphibians	Coeur d'Alene Salamander
		Amphibians	Western Toad

Number	Focal Area Name	Animal Subgroup	Species Name
9	East Cabinet Front	Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
10	Evaro Hill – North Hills	Amphibians	Coeur d'Alene Salamander

Number	Focal Area Name	Animal Subgroup	Species Name
10	Evaro Hill – North Hills	Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Sage Thrasher
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine

Number	Focal Area Name	Animal Subgroup	Species Name
10	Evaro Hill – North Hills	Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
11	Fish Creek Connectivity	Amphibians	Coeur d'Alene Salamander
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Sage Thrasher
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Townsend's Big-eared Bat

Number	Focal Area Name	Animal Subgroup	Species Name
11	Fish Creek Connectivity	Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
12	Hebgen	Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Trumpeter Swan
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo

Number	Focal Area Name	Animal Subgroup	Species Name
12	Hebgen	Mammals	Bison
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
13	Helena/East Continental Divide	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Black-necked Stilt
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse

Number	Focal Area Name	Animal Subgroup	Species Name
13	Helena/East Continental Divide	Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Pinyon Jay
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Trumpeter Swan
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	White-tailed Ptarmigan
		Mammals	Black-tailed Prairie Dog
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Great Basin Pocket Mouse
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Milksnake
14	Horse Prairie Sagebrush Associates	Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Tern

Number	Focal Area Name	Animal Subgroup	Species Name
14	Horse Prairie Sagebrush Associates	Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Pinyon Jay
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Great Basin Pocket Mouse
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew

Number	Focal Area Name	Animal Subgroup	Species Name
14	Horse Prairie Sagebrush Associates	Mammals	Pygmy Rabbit
		Mammals	Spotted Bat
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
15	Hubbard	Amphibians	Northern Leopard Frog
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Le Conte's Sparrow
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Sage Thrasher
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear

Number	Focal Area Name	Animal Subgroup	Species Name
15	Hubbard	Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
16	Ingomar	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Least Tern
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher

Number	Focal Area Name	Animal Subgroup	Species Name
16	Ingomar	Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
17	Jefferson	Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Forster's Tern

Number	Focal Area Name	Animal Subgroup	Species Name
17	Jefferson	Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Pinyon Jay
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Great Basin Pocket Mouse
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Preble's Shrew
		Mammals	Pygmy Rabbit
		Mammals	Spotted Bat
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Milksnake
18	Kevin Rim	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	Baird's Sparrow
		Birds	Bobolink

Number	Focal Area Name	Animal Subgroup	Species Name
18	Kevin Rim	Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Peregrine Falcon
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Mammals	Dwarf Shrew
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Reptiles	Greater Short-horned Lizard
		Reptiles	Western Hog-nosed Snake
19	Lake Basin	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Black-necked Stilt
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron

Number	Focal Area Name	Animal Subgroup	Species Name
19	Lake Basin	Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
20	Lolo – Clark Fork Connectivity	Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink

Number	Focal Area Name	Animal Subgroup	Species Name
20	Lolo – Clark Fork Connectivity	Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Sage Thrasher
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Preble's Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
21	Lolo Creek – Northern Bitterroots	Amphibians	Coeur d'Alene Salamander
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch

Number	Focal Area Name	Animal Subgroup	Species Name
21	Lolo Creek – Northern Bitterroots	Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Sage Thrasher
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Preble's Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
22	Lower Bighorn River	Amphibians	Great Plains Toad

Number	Focal Area Name	Animal Subgroup	Species Name
22	Lower Bighorn River	Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat

Number	Focal Area Name	Animal Subgroup	Species Name
22	Lower Bighorn River	Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
23	Lower Clark Fork – Grizzly Bear	Amphibians	Coeur d'Alene Salamander
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher

Number	Focal Area Name	Animal Subgroup	Species Name
23	Lower Clark Fork – Grizzly Bear	Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
24	Lower Missouri – R6	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Black-crowned Night-Heron
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Franklin's Gull
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Horned Grebe
		Birds	Le Conte's Sparrow
		Birds	Least Tern
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Nelson's Sharp-tailed Sparrow
		Birds	Peregrine Falcon
		Birds	Piping Plover

Number	Focal Area Name	Animal Subgroup	Species Name
24	Lower Missouri – R6	Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sedge Wren
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Smooth Greensnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
25	Lower Powder River	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Least Tern
		Birds	Loggerhead Shrike

Number	Focal Area Name	Animal Subgroup	Species Name
25	Lower Powder River	Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
26	Madison Valley	Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Black-crowned Night-Heron
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch

Number	Focal Area Name	Animal Subgroup	Species Name
26	Madison Valley	Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Franklin's Gull
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Trumpeter Swan
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Great Basin Pocket Mouse
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Pygmy Rabbit
		Mammals	Spotted Bat
		Mammals	Townsend's Big-eared Bat

Number	Focal Area Name	Animal Subgroup	Species Name
26	Madison Valley	Mammals	Wolverine
27	McCone	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Caspian Tern
		Birds	Chestnut-collared Longspur
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Horned Grebe
		Birds	Least Tern
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Piping Plover
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat

Number	Focal Area Name	Animal Subgroup	Species Name
27	McCone	Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Western Hog-nosed Snake
28	Milk River	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	American White Pelican
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Black-crowned Night-Heron
		Birds	Black-necked Stilt
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Caspian Tern
		Birds	Chestnut-collared Longspur
		Birds	Clark's Grebe
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Franklin's Gull
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Horned Grebe
		Birds	Least Tern
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover

Number	Focal Area Name	Animal Subgroup	Species Name
28	Milk River	Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Piping Plover
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Pygmy Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Western Hog-nosed Snake
29	Missouri Coteau	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	American White Pelican
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Burrowing Owl
		Birds	Caspian Tern
		Birds	Chestnut-collared Longspur
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron

Number	Focal Area Name	Animal Subgroup	Species Name
29	Missouri Coteau	Birds	Horned Grebe
		Birds	Le Conte's Sparrow
		Birds	Least Tern
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Nelson's Sharp-tailed Sparrow
		Birds	Peregrine Falcon
		Birds	Piping Plover
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sedge Wren
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Mammals	Arctic Shrew
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Short-tailed Shrew
		Mammals	Preble's Shrew
		Mammals	Pygmy Shrew
		Mammals	Swift Fox
		Reptiles	Greater Short-horned Lizard
		Reptiles	Smooth Greensnake
		Reptiles	Western Hog-nosed Snake
30	North Big Hole	Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak

Number	Focal Area Name	Animal Subgroup	Species Name
30	North Big Hole	Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Preble's Shrew
		Mammals	Pygmy Rabbit
		Mammals	Spotted Bat
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
31	North Blaine	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Black-crowned Night-Heron

Number	Focal Area Name	Animal Subgroup	Species Name
31	North Blaine	Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Horned Grebe
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Peregrine Falcon
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Mammals	Black-tailed Prairie Dog
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Pygmy Shrew
		Mammals	Swift Fox
		Reptiles	Greater Short-horned Lizard
		Reptiles	Western Hog-nosed Snake
32	Ovando – Helmville Grasslands	Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink

Number	Focal Area Name	Animal Subgroup	Species Name
32	Ovando – Helmville Grasslands	Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Sage Thrasher
		Birds	Trumpeter Swan
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	White-tailed Ptarmigan
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Preble's Shrew
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine

Number	Focal Area Name	Animal Subgroup	Species Name
33	Prairie Dog/Ferret	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Swift Fox

Number	Focal Area Name	Animal Subgroup	Species Name
33	Prairie Dog/Ferret	Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
34	Pryors – Big Horns	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Blue-gray Gnatcatcher
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher

Number	Focal Area Name	Animal Subgroup	Species Name
34	Pryors – Big Horns	Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Mammals	White-tailed Prairie Dog
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
35	Red Rocks Sagebrush Associates	Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Black-crowned Night-Heron
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk

Number	Focal Area Name	Animal Subgroup	Species Name
35	Red Rocks Sagebrush Associates	Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Franklin's Gull
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Trumpeter Swan
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Great Basin Pocket Mouse
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Pygmy Rabbit
		Mammals	Spotted Bat
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
36	Redwater River	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog

Number	Focal Area Name	Animal Subgroup	Species Name
36	Redwater River	Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Western Hog-nosed Snake
37	Rocky Mountain Front	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog

Number	Focal Area Name	Animal Subgroup	Species Name
37	Rocky Mountain Front	Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	Alder Flycatcher
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Black-crowned Night-Heron
		Birds	Black-necked Stilt
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Grebe
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Franklin's Gull
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk

Number	Focal Area Name	Animal Subgroup	Species Name
37	Rocky Mountain Front	Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Pinyon Jay
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Trumpeter Swan
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	White-tailed Ptarmigan
		Mammals	Black-tailed Prairie Dog
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Northern Bog Lemming
		Mammals	Preble's Shrew
		Mammals	Pygmy Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Greater Short-horned Lizard
		Reptiles	Western Hog-nosed Snake
38	Rosebud Creek	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow

Number	Focal Area Name	Animal Subgroup	Species Name
38	Rosebud Creek	Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Least Tern
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell

Number	Focal Area Name	Animal Subgroup	Species Name
38	Rosebud Creek	Reptiles	Western Hog-nosed Snake
39	Sage Grouse Core Area	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis

Number	Focal Area Name	Animal Subgroup	Species Name
39	Sage Grouse Core Area	Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
40	Sagebrush Obligate Focal Area	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker

Number	Focal Area Name	Animal Subgroup	Species Name
40	Sagebrush Obligate Focal Area	Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
41	Sagebrush/Grassland	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	American White Pelican
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Black-crowned Night-Heron
		Birds	Black-necked Stilt
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Caspian Tern
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Grebe
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern

Number	Focal Area Name	Animal Subgroup	Species Name
41	Sagebrush/Grassland	Birds	Franklin's Gull
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Horned Grebe
		Birds	Least Tern
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Piping Plover
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
42	Saint Regis	Amphibians	Coeur d'Alene Salamander
		Amphibians	Idaho Giant Salamander
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern

Number	Focal Area Name	Animal Subgroup	Species Name
42	Saint Regis	Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Varied Thrush
		Birds	Veery
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
43	Salish	Amphibians	Coeur d'Alene Salamander
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern

Number	Focal Area Name	Animal Subgroup	Species Name
43	Salish	Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Le Conte's Sparrow
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-tailed Ptarmigan
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink

Number	Focal Area Name	Animal Subgroup	Species Name
44	Seeley – Gold Creek	Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Trumpeter Swan
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-tailed Ptarmigan
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Preble's Shrew
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat

Number	Focal Area Name	Animal Subgroup	Species Name
44	Seeley – Gold Creek	Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
45	Sheep Creek	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat

Number	Focal Area Name	Animal Subgroup	Species Name
45	Sheep Creek	Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
46	Shields	Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Rosy-Finch
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk

Number	Focal Area Name	Animal Subgroup	Species Name
46	Shields	Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
47	Snowy Mountains	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker

Number	Focal Area Name	Animal Subgroup	Species Name
47	Snowy Mountains	Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Western Hog-nosed Snake
48	Swan	Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift

Number	Focal Area Name	Animal Subgroup	Species Name
48	Swan	Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Le Conte's Sparrow
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Sage Thrasher
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-tailed Ptarmigan
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard

Number	Focal Area Name	Animal Subgroup	Species Name
48	Swan	Reptiles	Snapping Turtle
49	Sweet Grass	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Ferruginous Hawk
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Horned Grebe
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Reptiles	Greater Short-horned Lizard
		Reptiles	Western Hog-nosed Snake
50	Tobacco Foothills	Amphibians	Coeur d'Alene Salamander
		Amphibians	Northern Leopard Frog

Number	Focal Area Name	Animal Subgroup	Species Name
50	Tobacco Foothills	Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Le Conte's Sparrow
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Northern Hawk Owl
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-tailed Ptarmigan
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine

Number	Focal Area Name	Animal Subgroup	Species Name
50	Tobacco Foothills	Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
51	Upper Clark Fork – East Deer Lodge	Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pileated Woodpecker
		Birds	Pinyon Jay
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Mammals	Black-tailed Prairie Dog

Number	Focal Area Name	Animal Subgroup	Species Name
51	Upper Clark Fork – East Deer Lodge	Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fisher
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
52	Whitefish Stillwater	Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Swift
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Bobolink
		Birds	Boreal Chickadee
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Common Loon
		Birds	Common Tern
		Birds	Evening Grosbeak
		Birds	Flammulated Owl
		Birds	Forster's Tern
		Birds	Golden Eagle
		Birds	Gray-crowned Rosy-Finch
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Harlequin Duck
		Birds	Horned Grebe
		Birds	Le Conte's Sparrow
		Birds	Lewis's Woodpecker
		Birds	Long-billed Curlew
		Birds	Northern Goshawk
		Birds	Northern Hawk Owl
		Birds	Peregrine Falcon

Number	Focal Area Name	Animal Subgroup	Species Name
52	Whitefish Stillwater	Birds	Pileated Woodpecker
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-tailed Ptarmigan
		Mammals	Canada Lynx
		Mammals	Fisher
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Northern Bog Lemming
		Mammals	Pygmy Shrew
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Northern Alligator Lizard
		Reptiles	Western Skink
53	Yellowstone	Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Amphibians	Western Toad
		Birds	American Bittern
		Birds	Black Rosy-Finch
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Flammulated Owl
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker

Number	Focal Area Name	Animal Subgroup	Species Name
53	Yellowstone	Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Sagebrush Sparrow
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Trumpeter Swan
		Birds	Varied Thrush
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Canada Lynx
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
54	Yellowstone River	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-billed Cuckoo
		Birds	Bobolink

Number	Focal Area Name	Animal Subgroup	Species Name
54	Yellowstone River	Birds	Brewer's Sparrow
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Least Tern
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Nelson's Sharp-tailed Sparrow
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Piping Plover
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sedge Wren
		Birds	Sharp-tailed Grouse
		Birds	Sprague's Pipit
		Birds	Veery
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake

Number	Focal Area Name	Animal Subgroup	Species Name
54	Yellowstone River	Reptiles	Smooth Greensnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake
55	Yellowstone River R5	Amphibians	Great Plains Toad
		Amphibians	Northern Leopard Frog
		Amphibians	Plains Spadefoot
		Birds	American Bittern
		Birds	Baird's Sparrow
		Birds	Black Tern
		Birds	Black-backed Woodpecker
		Birds	Black-billed Cuckoo
		Birds	Black-necked Stilt
		Birds	Bobolink
		Birds	Brewer's Sparrow
		Birds	Brown Creeper
		Birds	Burrowing Owl
		Birds	Cassin's Finch
		Birds	Chestnut-collared Longspur
		Birds	Clark's Nutcracker
		Birds	Evening Grosbeak
		Birds	Ferruginous Hawk
		Birds	Golden Eagle
		Birds	Great Blue Heron
		Birds	Great Gray Owl
		Birds	Greater Sage-Grouse
		Birds	Green-tailed Towhee
		Birds	Harlequin Duck
		Birds	Lewis's Woodpecker
		Birds	Loggerhead Shrike
		Birds	Long-billed Curlew
		Birds	McCown's Longspur
		Birds	Mountain Plover
		Birds	Northern Goshawk
		Birds	Peregrine Falcon
		Birds	Pinyon Jay
		Birds	Red-headed Woodpecker
		Birds	Sage Thrasher
		Birds	Sharp-tailed Grouse

Number	Focal Area Name	Animal Subgroup	Species Name
55	Yellowstone River R5	Birds	Sprague's Pipit
		Birds	Veery
		Birds	White-faced Ibis
		Birds	Yellow-billed Cuckoo
		Mammals	Black-tailed Prairie Dog
		Mammals	Dwarf Shrew
		Mammals	Fringed Myotis
		Mammals	Grizzly Bear
		Mammals	Hoary Bat
		Mammals	Little Brown Myotis
		Mammals	Merriam's Shrew
		Mammals	Pallid Bat
		Mammals	Preble's Shrew
		Mammals	Spotted Bat
		Mammals	Swift Fox
		Mammals	Townsend's Big-eared Bat
		Mammals	Wolverine
		Reptiles	Greater Short-horned Lizard
		Reptiles	Milksnake
		Reptiles	Snapping Turtle
		Reptiles	Spiny Softshell
		Reptiles	Western Hog-nosed Snake

Appendix M: Tier II Terrestrial Focal Areas

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

Sixty-one Tier II terrestrial Focal Areas were identified. If you would like more information (e.g., other species, threats, and impacts) on individual Focal Areas, please contact FWP at mtswap@mt.gov.

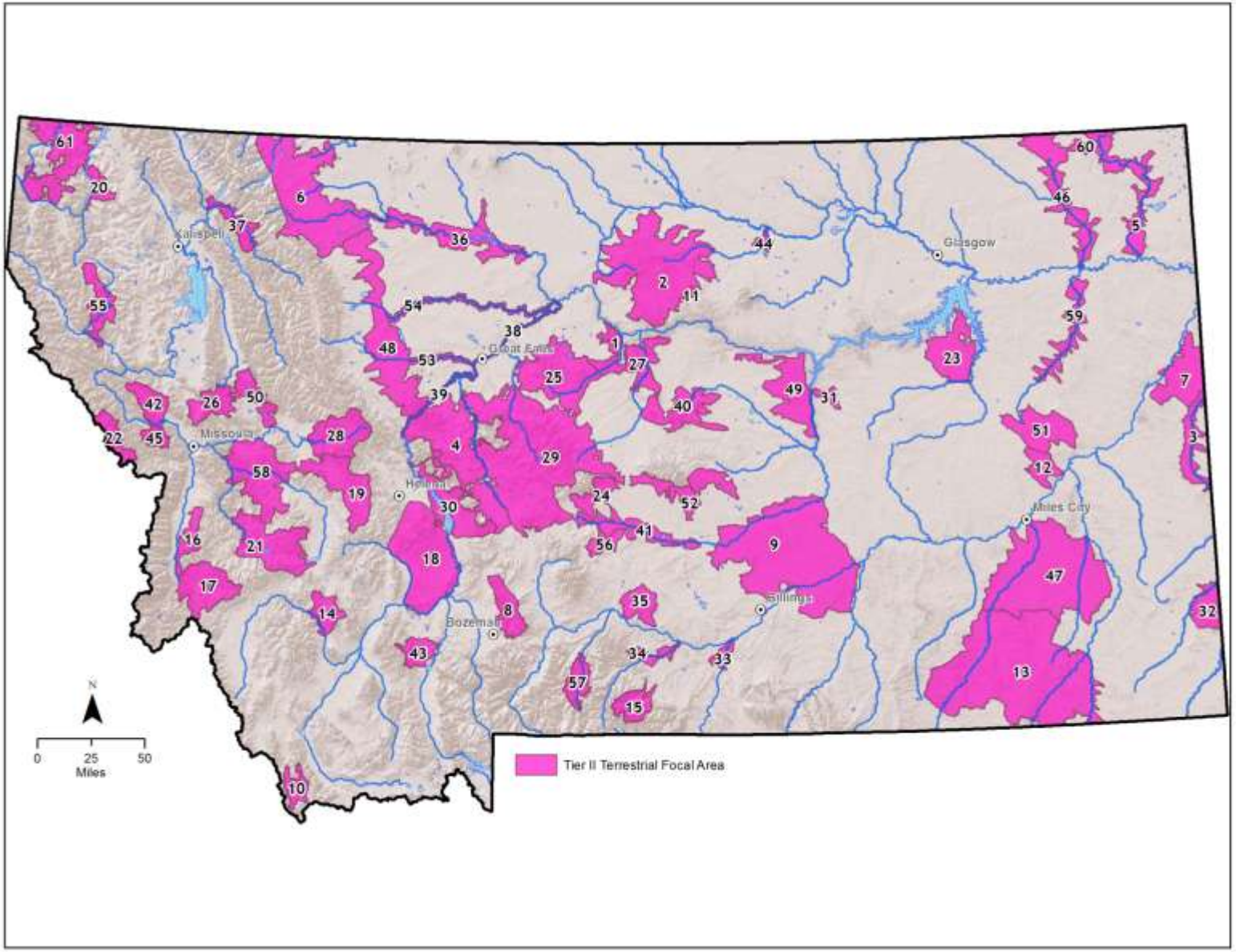

Figure 134. Tier II Terrestrial Focal Areas

Number	Focal Area Name
1	Arrow Creek
2	Bear's Paw
3	Beaver Creek (Wibaux Co)
4	Big Belts
5	Big Muddy
6	Blackfeet Reservation
7	Blue Mountain
8	Bridgers
9	Bull Mountains
10	Cabin Creek Sagebrush Associates
11	Cow Creek
12	Custer Creek
13	Custer National Forest
14	Divide
15	East and West Rosebud Creek
16	East Bitterroot Grasslands
17	East Fork Bitterroot
18	Elkhorns
19	Elliston Area Connectivity
20	Fivemile
21	Georgetown Lake - Phillipsburg
22	Great Burn Connectivity
23	Haxby point
24	Haymaker
25	Highwoods
26	Jocko
27	Judith River
28	Lincoln Connectivity
29	Little Belts
30	Little Belts / Canyon Ferry
31	Lodgepole Creek
32	Long Pine
33	Lower Clarks Fork of the Yellowstone connectivity
34	Lower Stillwater
35	Lower Sweetgrass
36	Marias River and breaks
37	Middle Fork Flathead River
38	Missouri below Great Falls
39	Missouri River upstream of Great Falls
40	Mount Judiths and Moccasins
41	Musselshell River R5T
42	Ninemile
43	Norris Hills
44	People's Creek
45	Petty Creek
46	Poplar River
47	Pumpkin Creek
48	RMF Buffer
49	SAGR Core Tier Two
50	Seeley East - Upper Clearwater
51	Sheep Mountain
52	Snowys
53	Sun River from August to Great Falls
54	Teton River from Choteau to Loma
55	Thompson
56	Two Dot east
57	Upper Boulder
58	Upper Clark Fork - Garnets
59	Upper Redwater River
60	Whitetail Creek
61	Yaak

Appendix N: List of all Species of Greatest Conservation Need

Group	Common Name	Scientific Name	State Rank*	Also Species of Greatest Inventory Need
Amphibians	Idaho Giant Salamander	*Dicamptodon aterrimus*	S2	
Amphibians	Coeur d'Alene Salamander	*Plethodon idahoensis*	S2	YES
Amphibians	Plains Spadefoot	*Spea bombifrons*	S3	
Amphibians	Northern Leopard Frog	*Lithobates pipiens*	S1,S4	
Amphibians	Great Plains Toad	*Anaxyrus cognatus*	S2	
Amphibians	Western Toad	*Anaxyrus boreas*	S2	
Birds	Black-necked Stilt	*Himantopus mexicanus*	S3B	
Birds	American Bittern	*Botaurus lentiginosus*	S3B	
Birds	Black-crowned Night-Heron	*Nycticorax nycticorax*	S3B	
Birds	Great Blue Heron	*Ardea herodias*	S3	
Birds	Bobolink	*Dolichonyx oryzivorus*	S3B	
Birds	Boreal Chickadee	*Poecile hudsonicus*	S3	
Birds	Whooping Crane	*Grus americana*	S1M	
Birds	Brown Creeper	*Certhia americana*	S3	
Birds	Black-billed Cuckoo	*Coccyzus erythropthalmus*	S3B	YES
Birds	Yellow-billed Cuckoo	*Coccyzus americanus*	S3B	YES
Birds	Peregrine Falcon	*Falco peregrinus*	S3	
Birds	Black Rosy-Finch	*Leucosticte atrata*	S2	YES
Birds	Cassin's Finch	*Haemorhous cassinii*	S3	
Birds	Evening Grosbeak	*Coccothraustes vespertinus*	S3	
Birds	Gray-crowned Rosy-Finch	*Leucosticte tephrocotis*	S2B,S5N	YES
Birds	Alder Flycatcher	*Empidonax alnorum*	S3B	
Birds	Blue-gray Gnatcatcher	*Polioptila caerulea*	S2B	

Group	Common Name	Scientific Name	State Rank*	Also Species of Greatest Inventory Need
Birds	Clark's Grebe	*Aechmophorus clarkii*	S3B	
Birds	Horned Grebe	*Podiceps auritus*	S3B	
Birds	Black Tern	*Chlidonias niger*	S3B	
Birds	Caspian Tern	*Hydroprogne caspia*	S2B	
Birds	Common Tern	*Sterna hirundo*	S3B	
Birds	Forster's Tern	*Sterna forsteri*	S3B	
Birds	Franklin's Gull	*Leucophaeus pipixcan*	S3B	
Birds	Least Tern	*Sternula antillarum*	S1B	YES
Birds	Ferruginous Hawk	*Buteo regalis*	S3B	
Birds	Golden Eagle	*Aquila chrysaetos*	S3	
Birds	Northern Goshawk	*Accipiter gentilis*	S3	YES
Birds	White-faced Ibis	*Plegadis chihi*	S3B	
Birds	Clark's Nutcracker	*Nucifraga columbiana*	S3	
Birds	Pinyon Jay	*Gymnorhinus cyanocephalus*	S3	
Birds	Chestnut-collared Longspur	*Calcarius ornatus*	S2B	
Birds	McCown's Longspur	*Rhynchophanes mccownii*	S3B	
Birds	Common Loon	*Gavia immer*	S3B	
Birds	Burrowing Owl	*Athene cunicularia*	S3B	
Birds	Flammulated Owl	*Otus flammeolus*	S3B	
Birds	Great Gray Owl	*Strix nebulosa*	S3	YES
Birds	Northern Hawk Owl	*Surnia ulula*	S3	
Birds	American White Pelican	*Pelecanus erythrorhynchos*	S3B	
Birds	Sprague's Pipit	*Anthus spragueii*	S3B	
Birds	Mountain Plover	*Charadrius montanus*	S2B	
Birds	Piping Plover	*Charadrius melodus*	S2B	

Group	Common Name	Scientific Name	State Rank*	Also Species of Greatest Inventory Need
Birds	Yellow Rail	*Coturnicops noveboracensis*	S3B	
Birds	Long-billed Curlew	*Numenius americanus*	S3B	
Birds	Loggerhead Shrike	*Lanius ludovicianus*	S3B	
Birds	Baird's Sparrow	*Ammodramus bairdii*	S3B	
Birds	Brewer's Sparrow	*Spizella breweri*	S3B	
Birds	Green-tailed Towhee	*Pipilo chlorurus*	S3B	
Birds	Le Conte's Sparrow	*Ammodramus leconteii*	S3B	
Birds	Nelson's Sparrow	*Ammodramus nelsoni*	S3B	
Birds	Sagebrush Sparrow	*Artemisiospiza nevadensis*	S3B	YES
Birds	Harlequin Duck	*Histrionicus histrionicus*	S2B	YES
Birds	Trumpeter Swan	*Cygnus buccinator*	S3	
Birds	Black Swift	*Cypseloides niger*	S1B	YES
Birds	Sage Thrasher	*Oreoscoptes montanus*	S3B	
Birds	Varied Thrush	*Ixoreus naevius*	S3B	
Birds	Veery	*Catharus fuscescens*	S3B	
Birds	Greater Sage-Grouse	*Centrocercus urophasianus*	S2	
Birds	Sharp-tailed Grouse	*Tympanuchus phasianellus*	S1,S4	
Birds	White-tailed Ptarmigan	*Lagopus leucura*	S3	YES
Birds	Black-backed Woodpecker	*Picoides arcticus*	S3	
Birds	Lewis's Woodpecker	*Melanerpes lewis*	S2B	
Birds	Pileated Woodpecker	*Dryocopus pileatus*	S3	
Birds	Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3B	
Birds	Pacific Wren	*Troglodytes pacificus*	S3	

Group	Common Name	Scientific Name	State Rank*	Also Species of Greatest Inventory Need
Birds	Sedge Wren	*Cistothorus platensis*	S3B	
Fish	Shortnose Gar	*Lepisosteus platostomus*	S1	
Fish	Northern Redbelly Dace	*Chrosomus eos*	S3	
Fish	Northern Redbelly X Finescale Dace	*Chrosomus eos x chrosomus neogaeus*	S3	
Fish	Pearl Dace	*Margariscus margarita*	S2	
Fish	Sicklefin Chub	*Macrhybopsis meeki*	S1	
Fish	Sturgeon Chub	*Macrhybopsis gelida*	S2S3	
Fish	Paddlefish	*Polyodon spathula*	S2	
Fish	Iowa Darter	*Etheostoma exile*	S3	
Fish	Sauger	*Sander canadensis*	S2	
Fish	Deepwater Sculpin	*Myoxocephalus thompsonii*	S3	YES
Fish	Spoonhead Sculpin	*Cottus ricei*	S3	
Fish	Torrent Sculpin	*Cottus rhotheus*	S3	
Fish	Pallid Sturgeon	*Scaphirhynchus albus*	S1	
Fish	White Sturgeon	*Acipenser transmontanus*	S1	
Fish	Blue Sucker	*Cycleptus elongatus*	S2S3	
Fish	Arctic Grayling	*Thymallus arcticus*	S1	
Fish	Bull Trout	*Salvelinus confluentus*	S2	
Fish	Columbia River Redband Trout	*Oncorhynchus mykiss gairdneri*	S1	
Fish	Lake Trout	*Salvelinus namaycush*	S2	
Fish	Pygmy Whitefish	*Prosopium coulteri*	S3	YES
Fish	Westslope Cutthroat Trout	*Oncorhynchus clarkii lewisi*	S2	
Fish	Yellowstone Cutthroat Trout	*Oncorhynchus clarkii bouvieri*	S2	

Group	Common Name	Scientific Name	State Rank*	Also Species of Greatest Inventory Need
Fish	Trout-perch	*Percopsis omiscomaycus*	S2	YES
Mammals	Fringed Myotis	*Myotis thysanodes*	S3	
Mammals	Hoary Bat	*Lasiurus cinereus*	S3	
Mammals	Little Brown Myotis	*Myotis lucifugus*	S3	
Mammals	Pallid Bat	*Antrozous pallidus*	S3	
Mammals	Spotted Bat	*Euderma maculatum*	S3	YES
Mammals	Townsend's Big-eared Bat	*Corynorhinus townsendii*	S3	
Mammals	Grizzly Bear	*Ursus arctos*	S2S3	
Mammals	Bison	*Bos bison*	S2	
Mammals	Canada Lynx	*Lynx canadensis*	S3	
Mammals	Northern Bog Lemming	*Synaptomys borealis*	S2	YES
Mammals	Great Basin Pocket Mouse	*Perognathus parvus*	S3	YES
Mammals	Pygmy Rabbit	*Brachylagus idahoensis*	S3	
Mammals	Arctic Shrew	*Sorex arcticus*	S1S3	
Mammals	Dwarf Shrew	*Sorex nanus*	S2S3	
Mammals	Merriam's Shrew	*Sorex merriami*	S3	
Mammals	Northern Short-tailed Shrew	*Blarina brevicauda*	S1S3	
Mammals	Preble's Shrew	*Sorex preblei*	S3	
Mammals	Pygmy Shrew	*Sorex hoyi*	S3	
Mammals	Black-tailed Prairie Dog	*Cynomys ludovicianus*	S3	
Mammals	White-tailed Prairie Dog	*Cynomys leucurus*	S1	
Mammals	Black-footed Ferret	*Mustela nigripes*	S1	
Mammals	Fisher	*Martes pennanti*	S3	
Mammals	Wolverine	*Gulo gulo*	S3	

Group	Common Name	Scientific Name	State Rank*	Also Species of Greatest Inventory Need
Mammals	Swift Fox	*Vulpes velox*	S3	
Mussels	Western Pearlshell	*Margaritifera falcata*	S2	
Reptiles	Northern Alligator Lizard	*Elgaria coerulea*	S3	YES
Reptiles	Milksnake	*Lampropeltis triangulum*	S2	
Reptiles	Smooth Greensnake	*Opheodrys vernalis*	S2	YES
Reptiles	Western Hog-nosed Snake	*Heterodon nasicus*	S2	YES
Reptiles	Greater Short-horned Lizard	*Phrynosoma hernandesi*	S3	YES
Reptiles	Western Skink	*Plestiodon skiltonianus*	S3	YES
Reptiles	Snapping Turtle	*Chelydra serpentina*	S3	YES
Reptiles	Spiny Softshell	*Apalone spinifera*	S3	

*Species with a State Rank of S1 or S2 are the primary focus of the SWAP.

Appendix O: List of Invertebrate Species of Concern (Montana Natural Heritage Program 2014)

Subgroup	Common Name	Scientific Name
Arachnids	A Cave Obligate Harvestman	*Cryptobunus cavicolus*
Beetles	Brown's Microcylloepus Riffle Beetle	*Microcylloepus browni*
Beetles	Saint Anthony Dune Tiger Beetle	*Cicindela arenicola*
Beetles	Warm Spring Zaitzevian Riffle Beetle	*Zaitzevia thermae*
Butterflies	Alberta Fritillary	*Boloria alberta*
Butterflies	Frigga Fritillary	*Boloria frigga*
Butterflies	Gillette's Checkerspot	*Euphydryas gillettii*
Butterflies	Gray Comma	*Polygonia progne*
Butterflies	Ottoe Skipper	*Hesperia ottoe*
Caddisflies	A Rhyacophilan Caddisfly	*Rhyacophila ebria*
Caddisflies	A Rhyacophilan Caddisfly	*Rhyacophila gemona*
Caddisflies	A Rhyacophilan Caddisfly	*Rhyacophila glaciera*
Caddisflies	A Rhyacophilan Caddisfly	*Rhyacophila newelli*
Caddisflies	A Rhyacophilan Caddisfly	*Rhyacophila potteri*
Caddisflies	A Rhyacophilan Caddisfly	*Rhyacophila rickeri*
Caddisflies	Alexander's Rhyacophilan Caddisfly	*Rhyacophila alexanderi*
Caddisflies	Northern Rocky Mountains Refugium Caddisfly	*Goereilla baumanni*
Caddisflies	Northern Rocky Mountains Refugium Caddisfly	*Rossiana montana*
Crustaceans	A Cave Obligate Isopod	*Salmasellus steganothrix*
Crustaceans	A Subterranean Amphipod	*Stygobromus montanensis*
Crustaceans	A Subterranean Amphipod	*Stygobromus obscurus*
Crustaceans	A Subterranean Amphipod	*Stygobromus puteanus*
Crustaceans	A Subterranean Amphipod	*Stygobromus tritus*
Crustaceans	Glacier Amphipod	*Stygobromus glacialis*
Damselflies	Subarctic Bluet	*Coenagrion interrogatum*
Dragonflies	Boreal Whiteface	*Leucorrhinia borealis*
Dragonflies	Brimstone Clubtail	*Stylurus intricatus*
Dragonflies	Brush-tipped Emerald	*Somatochlora walshii*
Dragonflies	Eastern Ringtail	*Erpetogomphus designatus*
Dragonflies	Subarctic Darner	*Aeshna subarctica*
Dragonflies	Western Pondhawk	*Erythemis collocata*
Freshwater Sponges	A Freshwater Sponge	*Ephydatia cooperensis*
Mayflies	A Mayfly	*Caenis youngi*

Subgroup	Common Name	Scientific Name
Mayflies	A Mayfly	*Parameletus columbiae*
Mayflies	A Mayfly	*Raptoheptagenia cruentata*
Mayflies	A Sand-dwelling Mayfly	*Anepeorus rusticus*
Mayflies	A Sand-dwelling Mayfly	*Homoeoneuria alleni*
Mayflies	A Sand-dwelling Mayfly	*Lachlania saskatchewanensis*
Mayflies	A Sand-dwelling Mayfly	*Macdunnoa nipawinia*
Mayflies	Lolo Mayfly	*Caurinella idahoensis*
Millipedes	A Millipede	*Adrityla cucullata*
Millipedes	A Millipede	*Austrotyla montani*
Millipedes	A Millipede	*Corypus cochlearis*
Millipedes	A Millipede	*Endopus parvipes*
Millipedes	A Millipede	*Lophomus laxus*
Millipedes	A Millipede	*Orophe cabinetus*
Millipedes	A Millipede	*Orthogmus oculatus*
Millipedes	A Millipede	*Taiyutyla curvata*
Mollusks	A Spring Snail	*Pyrgulopsis bedfordensis*
Mollusks	Alpine Mountainsnail	*Oreohelix alpina*
Mollusks	Berry's Mountainsnail	*Oreohelix strigosa berryi*
Mollusks	Bitterroot Mountainsnail	*Oreohelix amariradix*
Mollusks	Carinate Mountainsnail	*Oreohelix elrodi*
Mollusks	Gallatin Mountainsnail	*Oreohelix yavapai mariae*
Mollusks	Humped Coin	*Polygyrella polygyrella*
Mollusks	Keeled Mountainsnail	*Oreohelix carinifera*
Mollusks	Lake Disc	*Discus brunsoni*
Mollusks	Large-mantle Physa	*Physa megalochlamys*
Mollusks	Lyrate Mountainsnail	*Oreohelix haydeni*
Mollusks	Lyre Mantleslug	*Udosarx lyrata*
Mollusks	Magnum Mantleslug	*Magnipelta mycophaga*
Mollusks	Marbled Jumping-slug	*Hemphillia danielsi*
Mollusks	Pale Jumping-slug	*Hemphillia camelus*
Mollusks	Pygmy Mountainsnail	*Oreohelix pygmaea*
Mollusks	Pygmy Slug	*Kootenaia burkei*
Mollusks	Reticulate Taildropper	*Prophysaon andersoni*
Mollusks	Robust Lancetooth	*Haplotrema vancouverense*
Mollusks	Rocky Mountain Capshell	*Acroloxus coloradensis*

Subgroup	Common Name	Scientific Name
Mollusks	Rocky Mountain Duskysnail	*Colligyrus greggi*
Mollusks	Sheathed Slug	*Zacoleus idahoensis*
Mollusks	Shiny Tightcoil	*Pristiloma wascoense*
Mollusks	Shortface Lanx	*Fisherola nuttalli*
Mollusks	Smoky Taildropper	*Prophysaon humile*
Mollusks	Striate Disc	*Discus shimekii*
Mollusks	Western Pearlshell	*Margaritifera falcata*
Springtails	A Springtail	*Oncopodura cruciata*
Stoneflies	Alberta Snowfly	*Isocapnia integra*
Stoneflies	Clearwater Roachfly	*Soliperla salish*
Stoneflies	Columbian Snowfly	*Utacapnia columbiana*
Stoneflies	Cordilleran Forestfly	*Zapada cordillera*
Stoneflies	Hooked Snowfly	*Isocapnia crinita*
Stoneflies	Meltwater Lednian Stonefly	*Lednia tumana*
Stoneflies	Northern Rocky Mountains Refugium Stonefly	*Soyedina potteri*
Stoneflies	Springs Stripetail	*Isoperla petersoni*
Stoneflies	Western Glacier Stonefly	*Zapada glacier*

Citation

Montana Natural Heritage Program. 2014. Species of concern list updated on October 7, 2013. Retrieved on March 13, 2014. http://mtnhp.org/SpeciesOfConcern/?AorP=p

Appendix P: List of Plant Species of Concern (Global rank of G1 or G2 only; Montana Natural Heritage Program 2014)

Subgroup	Common Name	Scientific Name
Bryophytes	Bartram's tortula moss	Syntrichia bartramii
Bryophytes	Britton's dry rock moss	Grimmia brittoniae
Bryophytes	Hooker's physcomitrium moss	Physcomitrium hookeri
Bryophytes	Orthotrichum moss	Orthotrichum praemorsum
Bryophytes	Waterfall copper moss	Haplodontium macrocarpum
Ferns and Fern Allies	Adnate Moonwort	Botrychium adnatum
Ferns and Fern Allies	Frenchman's Bluff Moonwort	Botrychium gallicomontanum
Ferns and Fern Allies	Linearleaf Moonwort	Botrychium lineare
Ferns and Fern Allies	Stalked Moonwort	Botrychium pedunculosum
Flowering Plants	Alkali Primrose	Primula alcalina
Flowering Plants	Bitterroot Bladderpod	Physaria humilis
Flowering Plants	Bloom Peak Douglasia	Douglasia conservatorum
Flowering Plants	Idaho Sedge	Carex idahoa
Flowering Plants	Lackschewitz' Milkvetch	Astragalus lackschewitzii
Flowering Plants	Lesica's Bladderpod	Physaria lesicii
Flowering Plants	Long-styled Thistle	Cirsium longistylum
Flowering Plants	Mission Mountain kittentails	Synthyris canbyi
Flowering Plants	Northwestern Thelypody	Thelypodium paniculatum
Flowering Plants	Parry's Fleabane	Erigeron parryi
Flowering Plants	Sapphire Rockcress	Boechera fecunda
Flowering Plants	Shoshonea	Shoshonea pulvinata
Flowering Plants	Small-winged Sedge	Carex stenoptila
Flowering Plants	Spalding's Catchfly	Silene spaldingii
Flowering Plants	Storm Saxifrage	Micranthes tempestiva
Flowering Plants	Thick-leaf Bladderpod	Physaria pachyphylla
Flowering Plants	Thinsepal monkeyflower	Mimulus hymenophyllus
Flowering Plants	Ute Lady's-tresses	Spiranthes diluvialis
Flowering Plants	Weber's Saw-wort	Saussurea weberi
Lichens	A Lichen	Nodobryoria subdivergens
Lichens	A Lichen	Rhizoplaca haydenii
Lichens	A Lichen	Umbilicaria hirsuta
Lichens	Netted Specklebelly Lichen	Pseudocyphellaria anomala
Lichens	Speck Lichen	Verrucaria kootenaica

Citation

Montana Natural Heritage Program. 2014. Plant species of concern list updated on June 10, 2013. Retrieved on March 13, 2014. http://mtnhp.org/SpeciesOfConcern/?AorP=p